Before the
Architectural and Transportation Barriers and Compliance Board
Washington, DC 20004-1111

In the Matter of	)	
	)	
Americans With Disabilities Act (ADA)	)	Docket No. 2010-1
Accessibility Guidelines for Buildings and	)	
Facilities; Telecommunications Act	)	RIN No. 3014-AA37
Accessibility Guidelines; Electronic and	)	
information Technology Accessibility	)	
Standards	)	

To: The Board

JOINT COMMENTS OF THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION AND CTIA - THE WIRELESS ASSOCIATION®

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SUMMARY

TIA/CTIA agree that the Section 508 Standards and Section 255 Guidelines require reassessment to ensure they remain relevant to new and evolving telecommunications technologies. TIA/CTIA and many of their individual members actively participated in the TEITAC's efforts to develop recommendations for the Board, and the Board's open process and genuine interest in obtaining relevant technical information and data are to be commended. The concerns raised in the TIA/CTIA Minority Report on the TEITAC's April 2008 report, however, remain relevant with respect to much of the *ANPRM* and the Draft Guidelines, including: the proposed scope of the products covered by the Guidelines; the extent to which the Board's recommendations go beyond its statutory mandate to develop Guidelines on accessibility; and the provisions of Chapters 8 and 9 of the Draft Guidelines, which are the principal focus of these comments.

Several of the Board's Draft Guidelines addressing scope and jurisdictional issues are inconsistent with its Section 255 mandate or require clarification. The Board's role in developing Section 255 Guidelines is far more limited than its role in promulgating Section 508 Standards. The Board's Section 255 Guidelines apply only to telecommunications equipment and customer premises equipment as defined in the Communications Act of 1934, which also limits the Board's role to developing Guidelines on *accessibility* in conjunction with the FCC. Moreover, issues such as implementation and effective dates are part of the case-by-case "readily achievable" and "undue burden" determinations that fall outside the Board's statutory authority. TIA/CTIA submit that the Board can most effectively and appropriately discharge its statutory responsibilities by focusing on the functional and technical accessibility criteria that are the *ANPRM*'s principal objective.

With respect to specific questions in the *ANPRM* and the Draft Guidelines at Chapter 1:

- Questions 1 and 3. Organizing the Guidelines based on a features- and capabilities-based approach can be effective, including its proposed use of Advisory Notes to provide practical guidance. The Board must remain cognizant of Section 255's limited scope, and should ensure that products not subject to Section 255 are excluded from the Guidelines, and that the Guidelines clearly "map" which Guidelines apply to Section 508, Section 255, or both.
- Question 2 and Draft Guideline C103.3. The Board should focus on accessibility considerations rather than implementation timetables, which are part of the case-by-case "readily achievable" or "undue burden" analysis and outside the Board's statutory authority. This approach is consistent with Section 255(e) and the Board's own precedent.
- Draft Guidelines C102-C109. The Board must adhere to the Communications Act's and FCC's designation of services and equipment subject to Section 255 and the Hearing Aid Compatibility Act.
    - Draft Guideline C102. The Board should clarify the Advisory Note's HAC compliance provisions and ensure consistency with the FCC's wireless and wireline HAC requirements.

- Draft Guidelines C103.1-C103.2 and C106. The Draft Guidelines and Advisory Notes exceed the Board's statutory authority by encompassing information services and products associated with private, non-common carriage services.
- Draft Guidelines C103.4 and C103.5. Accessibility features available via Application Programming Interfaces ("APIs") and software or application downloads should be deemed "accessibility" methods, not peripherals or specialized CPE. The Board should also delete Advisory Note C103.4.1, as it is inconsistent with Section 255.
- Draft Guideline C103.6. TIA/CTIA generally support this provision, although it is critical that the technical guidelines be clear and do not limit innovation. Flexible technical requirements are needed for this Guideline.
- Draft Guideline C104. TIA/CTIA generally support this provision, although the Board should ensure that manufacturers have flexibility to meet the information, documentation and training requirements.
- Questions 8-9, Draft Guidelines C109-C110. Several definitions should be modified or clarified, including: ICT; Large Scale Font; Real Time Text (RTT); Terminal; Keyboard; and Typically Held to the Ear." The reference to ATSC/BRSC Standards at C110 should also be eliminated.

TIA/CTIA generally support the functional criteria of Chapter 2, but the Board should more clearly account for the limited scope of Section 255 and the statutory limitations of the Board's authority.

- Questions 10 and 15, Draft Guidelines 201 and 202.1. The Board should clarify and restrict the scope of the functional criteria. The Board should clearly map which functional requirements apply to Section 255, Section 508, or both. The Board should also not adopt functional requirements for cognitive disabilities, but can help address this issue by identifying particular features in the Advisory Notes. The Board should not require that each mode of operation of a product meet the functional performance criteria under Section 255.
- Draft Guidelines 202.2-202.10. Several of the proposed disability-specific functional criteria warrant clarification, including: the visual acuity threshold for "Limited Vision" (202.3); the background noise provision for "Limited Hearing" (202.6); the provisions for "Limited Manipulation" and "Limited Reach and Strength" (202.8 and 202.9); several components of the provisions for "Without Physical Contact" (202.10); and "Minimize Photosensitive Seizure Triggers."

TIA/CTIA provide detailed comments for Chapters 8 and 9 at the attachments hereto. With respect to Chapter 8, the Board should ensure that the Guidelines are consistent with FCC rules and precedent and remain relevant as the FCC reviews its HAC rules. TIA/CTIA are concerned that many of the Chapter 8 Draft Guidelines would: impose technical standards that are not applicable to the particular technology or feature at issue; lock manufacturers into particular technical standards and features, thus undermining innovation; and impose standards that are applicable for one technology but not others.

With respect to Chapter 9, in the near term RTT technologies should prioritize support for emergency services, as requiring a specific transmission standard without interoperable emergency services platforms would be inefficient. The Board should also ensure that the

Chapter 9 Guidelines facilitate the transition from traditional TTY devices to IP-based technologies, and should not impose backward-compatibility obligations that deter innovation. In addition, pending proposals on network neutrality may have implications with respect to RTT capabilities, such as delay and error rate standards. Finally, the Board should affirm that RTT is not the only means by which manufacturers can make their handsets accessible for the deaf and hard of hearing.

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To: The Board

JOINT COMMENTS OF THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION AND CTIA - THE WIRELESS ASSOCIATION®

The Telecommunications Industry Association ("TIA")[1] and CTIA – The Wireless Association® ("CTIA")[2] (together "TIA/CTIA") hereby jointly respond to the United States Access Board's (the "Board") request for comment in its Advance Notice of Proposed Rulemaking on draft Section 508 Standards ("Standards") and Section 255 Guidelines ("Draft Guidelines").[3] In adopting the Section 508 Standards and Section 255 Guidelines, the Board

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[1] TIA is the leading trade association for the information and communications technology ("ICT") industry, representing companies that manufacture or supply the products and services used in global communications across all technology platforms. TIA represents its members on the full range of public policy issues affecting the ICT industry and forges consensus on industry standards. Among their numerous lines of business, TIA member companies design, produce, and deploy a wide variety of devices with the goal of making technology accessible to all Americans. www.tiaonline.org

[2] CTIA – The Wireless Association® is the international organization of the wireless communications industry for both wireless carriers and manufacturers. Membership in the organization covers Commercial Mobile Radio Service ("CMRS") providers and manufacturers, including cellular, Advanced Wireless Service, 700 MHz, broadband PCS, and ESMR, as well as providers and manufacturers of wireless data services and products. www.ctia.org

[3] *See Americans With Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Telecommunications Act Accessibility Guidelines; Electronic and information*

(continued on next page)

should carefully consider the limited scope of its jurisdiction to implement Section 255, and ensure that the Guidelines are consistent with the Board's statutory authority under Sections 508 and 255. In addition, the Board should adopt the specific recommendations at Attachments 1 and 2 regarding Chapter 8 (Audio Output from Hardware/Hearing Aid Compatibility) and Chapter 9 (Conversation Functionality and Controls – Real-Time Text and Other Features), respectively.

INTRODUCTION

TIA's and CTIA's members include manufacturers of telecommunications equipment, software and related products, and telecommunications service providers subject to Sections 508 of the Rehabilitation Act and Section 255 of the Communications Act. Section 508 and the Board's implementing Standards[4] have provided important and useful incentives for Information and Communications Technology ("ICT") vendors to continue to improve the accessibility of their products. Likewise, Section 255's flexible mandate – together with the Board's existing Guidelines and Federal Communications Commission ("Commission" or "FCC") implementing regulations[5] – has accommodated the development and deployment of innovative and accessible

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Technology Accessibility Standards, Docket No. 2010-1 RIN No. 3014-AA37, 75 Fed. Reg. 13457 (March 22, 2010) ("*ANPRM*"); U.S. Access Board *Draft Information and Communication Technology (ICT) Standards and Guidelines* (March 2010), available at http://www.access-board.gov/508/htm. Page citations to the Draft Guidelines relate to the printable Adobe Acrobat version available at the aforementioned URL.

[4] *See* Section 508 of the Rehabilitation Act of 1973, as amended by the Workforce Investment Act of 1998, Pub. L. 105-220, codified at 29 U.S.C. § 794d; 65 Fed. Reg. 80500 (Dec. 21, 2000), *codified at* 36 C.F.R. Part 1194 (the "Standards").

[5] *See* 47 U.S.C. § 255; 47 C.F.R. Parts 6-7; 36 C.F.R. Part 1193 (the "Guidelines").

telecommunications services and equipment to the benefit of *all* Americans, consistent with Congress's objectives.[6]

American consumers have witnessed enormous advances in the accessibility of telecommunications equipment and services achieved under current law. Nonetheless, the existing Section 508 Standards and Section 255 Guidelines are 10 and 12 years old, respectively, during which time communications technologies have evolved from analog, to digital, to internet protocol ("IP"). Accordingly, the Standard and Guidelines require reassessment to ensure they remain relevant to the telecommunications technologies consumers use today. In support of this important effort, TIA/CTIA and a number of their individual members actively participated in the TEITAC's efforts to develop recommendations for the Board, which culminated in the TEITAC's detailed April 2008 Report.[7] The Board's open and public process, and its genuine

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[6] *See* FCC Comments of CTIA – The Wireless Association® in GN Docket No. 10-100, at 4 (filed June 10, 2010) ("CTIA Clearinghouse Comments"); *Expanding Access with Wireless Technology - Disability Access Workshop*, (FCC May 13, 2010), Written Statement of Rebecca Schwartz, TIA, available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-298730A1.doc. Testimony of Bobby Franklin, Executive Vice President, CTIA – The Wireless Association®, Before the U.S. House of Representatives Subcommittee on Communications, Technology and the Internet, June 10, 2010, at 20 ("CTIA H.R. 3101 Testimony"). At the Commission's May 13, 2010 Workshop discussing wireless technologies and accessibility, Paul Schroeder of the American Foundation for the Blind ("AFB") discussed the preliminary results of an AFB survey, which found concern with respect to the accessibility text, Internet access and other information services, but also noted that "the majority of those using their mobile phones to make calls were satisfied with their phone's ability to make calls (91%)." *Expanding Access with Wireless Technology - Disability Access Workshop*, (FCC May 13, 2010), Written Statement of Paul Schroeder, AFB, available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-298730A1.doc.

[7] *See* Telecommunications and Electronic and Information Technology Advisory Committee, *Report to the Access Board: Refreshed Accessibility Standards and Guidelines in Telecommunications and Electronic and Information Technology* (April 2008) ("TEITAC Report").

interest in obtaining relevant technical information and data, as evidenced in the TEITAC process and in this *ANPRM*, are to be commended.

Nevertheless, in their Minority Report on the TEITAC Report,[8] TIA/CTIA raised a number of important concerns, many of which remain relevant considerations as the Board considers the initial Draft Guidelines at issue in the *ANPRM*, including:

- The Board must be conscious of its limited role and jurisdiction in Section 255 implementation, and ensure that its Guidelines remain consistent with its grants of authority under Sections 508 and 255.[9]

- Following from TIA/CTIA's concern that the Board not oversimplify the degree or scope of technology convergence as it relates to the Guidelines,[10] the Board must make explicit which of the technical requirements are intended to apply to Section 508 alone, as opposed to those that apply to Section 255 as well. Manufacturers require more certainty as to which requirements apply for which regulatory purpose.

- Finally, echoing TIA/CTIA's Minority Report request that the Board proceed carefully with respect to captioning and RTT technologies,[11] as it considers technical standards and requirements the Board must also ensure that it affords sufficient flexibility with respect to implementation. Locking in manufacturers to particular technologies or solutions would adversely affect consumers with and without disabilities.

Again, there is much to commend in the Board's initial efforts here. The concerns raised in the Minority Report, however, remain relevant with respect to much of the *ANPRM* and the Draft Guidelines, including: the proposed scope of the products covered by the Guidelines; the extent to which the Board's recommendations go beyond its mandate to develop Guidelines on accessibility; and the provisions of Chapters 8 and 9 of the Draft Guidelines, which are the focus of these comments. Comments on the Board's specific questions follow.

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[8] *See* Comments of CTIA – The Wireless Association® and the Telecommunications Industry Association – Minority Report, available at http://www.access-board.gov/sec508/update-index.htm ("Minority Report").
[9] *See id.* at 3-4.
[10] *See id.* at 5.
[11] *See id.* at 5-6.

DISCUSSION

TIA/CTIA's comments concerning the individual details of specific Draft Guidelines principally relate to Chapters 8 and 9. Further, a number of the Board's underlying presumptions concerning the permissible legal scope of the Draft Guidelines should also be revisited to ensure that the Board does not overstep its legal authority.

I. SEVERAL OF THE BOARD'S DRAFT GUIDELINES GOVERNING THE APPLICABILITY OF THE GUIDELINES ARE INCONSISTENT WITH ITS SECTION 255 MANDATE OR REQUIRE CLARIFICATION

A. The Board Has a Far More Limited Statutory Role in Developing Section 255 Guidelines Than It Does in Promulgating Section 508 Standards

Sections 508 and 255 serve different purposes and are governed by different statutory frameworks. Section 508 is more expansive with respect to both the products covered and the Board's implementation role. Section 508 applies to "electronic and information technology," as defined consistent with "section 5002(3) of the Clinger-Cohen Act of 1996 (40 U.S.C. 1401(3))."[12] The Board has expansively interpreted the term such that it:

> Includes *information technology* and any equipment or interconnected system or subsystem of equipment, that is used in the creation, conversion, or duplication of data or information. The term electronic and information technology includes, but is not limited to, telecommunications products (such as telephones), information kiosks and transaction machines, World Wide Web sites, multimedia, and office equipment such as copiers and fax machines.[13]

The term "information technology," in turn, is defined to include:

> Any equipment or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. The term information technology

[12] *See* 29 U.S.C. § 794d(a)(1)-(2).

[13] *See* 36 C.F.R. § 1194.4 (emphasis added).

> includes computers, ancillary equipment, software, firmware and similar procedures, services (including support services), and related resources. [14]

The Board's Section 508 standards have direct legal consequences. The statute directs the Board, in relevant part, to "issue and publish standards setting forth … the technical and functional performance criteria necessary" to meet Section 508's accessibility requirement. Federal agencies, in "developing, procuring, maintaining, or using" electronic or information technology, *must* comply with the Board's Section 508 standards unless doing so would impose an undue burden on the agency. The standards thus have binding effect.

The Board's authority with respect to the Section 255 Guidelines, however, is far more limited. Sections 255(b) and (c) of the Communications Act require that manufacturers of customer premises equipment ("CPE") and telecommunications equipment, and telecommunications service providers, ensure that their products and services, respectively, are "accessible to and usable by individuals with disabilities, if readily achievable." Congress also left implementation of the Act exclusively to the Commission except where otherwise indicated.[15] The Commission, not the Board, has authority to interpret the scope and meaning of Section 255. Moreover, Section 255 itself is limited to telecommunications services, telecommunications equipment, and CPE – all of which are expressly defined in the Communications Act alone.[16]

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[14] *Id.*

[15] *See* 47 U.S.C. § 154(i).

[16] *See* 47 U.S.C. §§ 153(14) (CPE), 153(43) (telecommunications), 153(45) (telecommunications equipment) and 153(46) (telecommunications service).

It is well-established under current law, moreover, that "information services" are not "telecommunications services" for Communications Act purposes.[17] Many "information services," as that term is defined in the Communications Act, fall into the category of products and services covered by Section 508.[18] Thus, Congress has determined that many products and services subject to Section 508 are *not* subject to Section 255, and the Board must ensure that it does not second-guess that legislative judgment.

Section 255(e) of the Communications Act further limits the Board's delegated authority to "develop[ing] guidelines *for accessibility of*" covered equipment "*in conjunction with the*

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[17] *See Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities, Internet Over Cable Declaratory Ruling, Appropriate Regulatory Treatment for Broadband Access to the Internet Over Cable Facilities*, Declaratory Ruling and Notice of Proposed Rulemaking, 17 FCC Rcd 4798, 4820-24, ¶¶ 34-41 (2002), *aff'd sub. nom. National Cable & Telecommunications Ass'n v. Brand X Internet Services*, 125 S. Ct. 2688 (2005); *Appropriate Regulatory Treatment for Broadband Access to the Internet Over Wireless Networks, Declaratory Ruling*, 22 FCC Rcd 5901, 5915-21 ¶¶ 37-56 (2007) (broadband Internet access service does not constitute a commercial mobile radio service offering under Section 332(c) of the Communications Act). Where the Commission has applied Section 255's accessibility obligations beyond telecommunications services and equipment, as it has done for voice mail, interactive menus, and interconnected VoIP, it has done so only on a restrictive basis and for reasons inapplicable here. *See IP-Enabled Services et al.,* Report and Order, 22 FCC Rcd 11275, 11228 ¶ 24 and n.99 (2007) (finding that "[t]o the extent that consumers are replacing their traditional phone service with interconnected VoIP service, … it is critical that the disability safeguards afforded by Congress with respect to legacy telecommunications services and equipment be carried forward to interconnected VoIP services and equipment" but declining to apply to other VoIP services); *Section 255 FCC Report and Order* at 6458-59 ¶¶ 101-103 (finding that voicemail and interactive menus should be subject to the same accessibility and usability requirements as telecommunications services); *see id.* at 6461 ¶ 107 ("we decline to extend accessibility obligations to any other services" as they were found to "not have the potential to render telecommunications services themselves inaccessible" and that while services such as "e-mail, electronic information services, and web pages" are "alternatives to telecommunications services [they are] not essential to their effective use.").

[18] *See* 47 U.S.C. § 153(20) (defining "information service" as "the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications, and includes electronic publishing, but does not include any use of any such capability for the management, control, or operation of a telecommunications system or the management of a telecommunications service.").

Commission," (emphasis added) whereas implementation of Section 255 otherwise lies exclusively with the FCC. As the FCC explained in adopting its implementing regulations:

> While we acknowledge the Access Board's expertise in identifying the access requirements of persons with disabilities in a comprehensive manner, *we find that the Commission would not be bound to adopt the Access Board's guidelines as its own, or to use them as minimum standards, if it were to conclude, after notice and comment, that such guidelines were inappropriate*. Typically, unless otherwise provided by statute, "guidelines" are distinct from rules and, like a general statement of policy or procedure, are not considered to have the force and effect of law.[19]

Thus, unlike the Section 508 standards, the Board's Section 255 Guidelines are non-binding and apply only to equipment.[20] Moreover, considerations relevant to a "readily achievable" analysis, such as implementation deadlines to account for technical feasibility and other factors, are a component of a "readily achievable" analysis, which is clearly the FCC's, not the Board's responsibility.[21] Similarly, Section 508 "undue burden" considerations are ultimately subject to case-by-case determinations by individual agencies. TIA/CTIA respectfully urge the Board to most effectively and appropriately discharge its statutory responsibilities under both Sections 508 and Section 255 by focusing on the functional and technical accessibility criteria that are the *ANPRM*'s principal objective.

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[19] *See Implementation of Sections 255 and 251(a)(2) of the Communications Act of 1934, as Enacted by the Telecommunications Act of 1996; Access to Telecommunications Service, Telecommunications Equipment and Customer Premises Equipment by Persons with Disabilities*, Report and Order and Further Notice of Inquiry, 16 FCC Rcd 6417, 6427 ¶ 15 (1999) ("*FCC Section 255 Order*") (emphasis added).

[20] *See id.* at 6426-27 ¶¶ 14-15.

[21] *See FCC Section 255 Order* at 6439-40 ¶¶ 47-48 (interpreting factors relevant to "readily achievable" analysis and finding that "[i]f our experience enforcing this statute persuades us that including some other considerations may prove beneficial, we will, at a later time, consider including them."); *see id.* at 6444 ¶ 62 ("manufacturers and service providers are not required to incorporate accessibility features that are technically infeasible").

B. Organizing the Guidelines Based on a Features- and Capabilities-Based Approach Can Be Effective, But the Board Must Remain Cognizant of Section 255's Limited Scope (Questions 1 and 3)

At Question 1 of the *ANPRM*, the Board seeks comments on the usability and effectiveness of its feature- and capabilities-based approach to defining and describing how manufacturers might comply with Sections 508 and 255, as well as alternative organizational approaches.[22] The Board at Question 3 also notes that it titled each provision and located advisory notes next to the associated requirements and seeks comment on any other format changes that will make the draft easier to use.[23] TIA/CTIA agree that a feature-based approach, rather than a product-based approach, can be more effective for both Section 508 and 255 purposes. The placement of Advisory Notes next to the requirements also can provide more easy-to-follow guidance for manufacturers, software providers and others subject to the Guidelines. While the advisory guidance provided under the current Section 255 Guidelines includes some practical and helpful guidance for industry,[24] it is very limited. Making such practical, real-world guidance more expansive and prominent in the Guidelines may prove helpful.

The Board also posits, however, that "[c]onvergent technologies… support the growing demand for all-in-one products, such as mobile devices that offer voice and text communication, web browsing, and media players."[25] This appears to be one of the Board's motivating factors for adopting a single, uniform set of standards for both Section 508 and Section 255 purposes.

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[22] *ANPRM*, 75 Fed. Reg. at 13459.
[23] *Id.*
[24] *See Architectural and Transportation Barriers Compliance Board, Telecommunications Act Accessibility Guidelines*, Final Rule, 63 Fed. Reg. 5608, 5633-41 (Advisory Guidance) (the "*Section 255 Guidelines*").
[25] *ANPRM*, 75 Fed. Reg. at 13459.

But, as TIA/CTIA advised in their Minority Report, this is not a universal phenomenon, as not all devices will (or should) have converged capabilities.[26] Furthermore, any final Standards and Guidelines must reflect the fact that features or capabilities that may be subject to Section 508 in a particular device may not be covered by Section 255. However, the feature-based organization approach as currently reflected in the *ANPRM* seems to presume that each feature applies equally to Section 508 and Section 255.

For these reasons, the Board must ensure that the scope of the Section 255 Draft Guidelines (including the various Advisory Notes) is appropriately revised to encompass only the services covered by the Communications Act and the FCC's rules. It is also critical that the Board more effectively "map" the particular subsections of each chapter, and the individual features within each, so that it is explicitly clear which Guidelines are applicable to Section 255 compliance, Section 508 compliance, or both. While TIA/CTIA's joint comments focus on Chapters 8 and 9 of the draft technical provisions, such "mapping" should be undertaken throughout each Chapter.[27] Such an approach is more consistent with the approach undertaken in the TEITAC Report, which identified the relevant Section 508 and Section 255 counterparts under the current Access Board Standards and Guidelines. In that regard, and consistent with its current practice, the Board should again adopt separate, stand-alone codified provisions in the Code of Federal Regulations for the Section 255 Guidelines and Section 508 Standards. This will also help with FCC and industry implementation of the final Guidelines.

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[26] *See* Minority Report at 5.

[27] Chapter 6, for example, relates to video/audio content for media devices such as televisions, tuners, and DTV converter boxes, none of which are used in the provision of telecommunications services. Much of Chapter 4 relates to website use which, under the Communications Act and FCC precedents, is associated exclusively with the provision of information services.

C. The Board Should Focus on Accessibility Considerations Rather than Implementation Timetables (Question 2 and Draft Guideline C103.3)

At Question 2 of the *ANPRM*, the Board seeks input on what implementation time frames would be reasonable, specifically whether some provisions should have differing implementation dates.[28] Implementation time frames for Section 255 purposes, however, are beyond the Board's jurisdiction, which covers "develop[ment of] guidelines *for accessibility* of telecommunications equipment and customer premises equipment."[29] Timetables are instead part and parcel to individualized, case-by-case "readily achievable" determinations that are exclusively the subject of FCC consideration.[30]

This is consistent with the Board's own interpretation of its Section 255 responsibilities. While the Board initially addressed the "readily achievable" standard in adopting its original Guidelines, it did so only on an interim basis, clarifying that:

> The Board expects that the FCC will set forth the factors which it will use to judge compliance. Once that occurs the Board will revise the appendix to these guidelines, as appropriate. However, in the absence of specific criteria issued by the FCC, the Board believes it is desirable to provide interim guidance.[31]

The Commission subsequently did issue "specific criteria" and thus, there is no basis for the Board to further address the matter here.

The Board also previously expressly declined to adopt a specific implementation date, for reasons equally relevant here:

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[28] *ANPRM*, 75 Fed. Reg. at 13459.
[29] 47 U.S.C. § 255(e) (emphasis added).
[30] *See FCC Section 255 Order*, 16 FCC Rcd. at 6439 ¶ 47 (agreeing "that individual facts and circumstances will vary, and that what is readily achievable must be determined on a case-by-case basis").
[31] *See Section 255 Guidelines*, 63 Fed. Reg. at 5614.

> Since the determination whether an action is readily achievable will automatically change over time, with new technology or new understanding, no explicit phase-in is needed. Obviously, knowing about an accessibility solution, even in detail, does not mean it is readily achievable for a specific manufacturer to implement it immediately.[32]

Section 508's undue burden also necessitates a case-by-case analysis.[33] Thus, implementation dates for Section 508 or Section 255 will need to be determined on a individualized basis depending on, among other things, whether a standard is in place at all, the length of time a particular industry standard has been in effect, the time needed for product research and development, production and marketplace deployment.

Additionally, Draft Guideline C103.3 proposes that new Guidelines would apply to new products "manufactured or sold on or after the effective date" and products "that undergo substantial change or upgrade, or for which new releases are distributed" must comply, except for "minor or insubstantial changes … that do not affect functionality."[34] For the same reasons discussed above, the Board should not impose any sort of "effective date" on particular product features, as such a determination is appropriately the subject of the relevant case-by-case readily achievable or undue burden analysis.[35] Such action would only create confusion, and the Board

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[32] *See id.*

[33] *See Architectural and Transportation Barriers Compliance Board, Electronic and Information Technology Accessibility Standards***,** Final Rule, 65 Fed. Reg. at 80506 (Dec. 21, 2000) (the "*Section 508 Standards*").

[34] *ANPRM*, 75 Fed. Reg. at 13461; Draft Guidelines at 18.

[35] The Board's proposal to base the applicability of the Guidelines on when a product is "manufactured *or* sold" is particularly problematic. *See id.* (emphasis added). There can be a considerable lag time between the manufacture and sale of a product. Is the Board suggesting that a Standard/Guideline would apply if it becomes "effective" while the product is in the manufacturer's inventory? Incorporating new Standards/Guidelines are incorporated into a product upgrade or release is problematic as well. A product release or upgrade may not affect the user interface at all, or may not entail a significant degree of product development. Thus, the
(continued on next page)

should simply avoid these problems by properly deferring to the FCC's and agencies' case-by-case determinations. Moreover, the FCC has clarified that readily achievable accessibility features are to be incorporated during "modifications to a product or service that require the manufacturer or service provider to substantially re-design the product or service."[36] The Board may not depart from this threshold, which derives from the FCC's exclusive authority to apply the readily achievable standard.

D. The Board Must Adhere to the Communications Act's and FCC's Designation of Services and Equipment Subject to Section 255 and the Hearing Aid Compatibility Act (Draft Guidelines C102-C109)

Draft Guidelines C102-C109 relate to the application and administration of new Guidelines for Section 255 purposes. (For the Board's convenience, TIA/CTIA in general have addressed these issues in the order in which they appear.) In several instances, these Draft Guidelines, if adopted, would purport to apply to services and products outside the scope of Section 255 and the Commission's current rules. For the reasons discussed above, the Board must ensure that its actions do not exceed its statutory authority.

1. *Scope/Definitions – The Board Should Clarify the Advisory Note's HAC Compliance Provisions (Draft Guideline C102)*

This Draft Guideline includes an Advisory Note stating that "[s]ome cellular telephones may fall outside of the thresholds or benchmark dates established by the FCC for meeting [HAC] requirements in Chapter 9 … but they shall still meet other applicable provisions from this document."[37] The Board should use the term "wireless telephone" rather than "cellular," as

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release or upgrade may not provide a significant opportunity to incorporate the accessibility feature.

[36] *FCC Section 255 Order*, 16 FCC Rcd at 6447 ¶ 71.

[37] *ANPRM*, 75 Fed. Reg. at 13461, Draft Guidelines at 17.

there are many services other than cellular that are subject to the FCC's section 20.19 HAC rules.[38] More fundamentally, the purpose of the Advisory Note on HAC compliance is unclear. Is the Board saying that an exemption from the FCC's wireless HAC rules does not exempt a device from the non-HAC provisions of the document? Or that an exemption from the FCC's HAC rules does not necessarily exempt it from HAC requirements of these Guidelines if compliance is readily achievable?

Regardless, the Access Board must be guided by the FCC's policies underlying its HAC rules, which derive from its authority under Section 710 of the Communications Act.[39] The Commission's specific authority to impose HAC requirements is subject to statutory prerequisites that apply independent of Section 255.[40] Moreover, the current wireless HAC rules in particular are the result of extensive FCC rulemaking proceedings and consensus between industry and consumer groups.[41] In adopting the rules, which require that many, but not all handsets be HAC-certified, the Commission accounted for a number of important factors, including, among other things, technical feasibility and cost considerations, the status of industry standards, as well as device innovation.[42] The Commission also has long-established rules and

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[38] *See* 47 C.F.R. § 20.19(a).

[39] 47 U.S.C. § 610.

[40] *See* 47 U.S.C. § 610(b)(2)(C). The Board may not purport to supersede the Commission's own public interest determinations under the specific framework of Section 710. *See Varity Corp. v. Howe*, 516 U.S. 489, 511 (1996) ("[t]his Court has understood the present canon ('the specific governs the general') as a warning against applying a general provision when doing so would undermine limitations created by a more specific provision").

[41] *See Amendment of the Commission's Rules Governing Hearing Aid-Compatible Mobile Handsets, Petition of American National Standards Institute Accredited Standards Committee C63 (EMC) ANSI ASC C63®*, First Report and Order, 23 FCC Rcd 3406, 3414-15 ¶¶ 23-27 (2008) ("*2008 HAC Order*").

[42] *See* 47 C.F.R. § 20.19; *2008 HAC Order*, 23 FCC Rcd at 3431-35 ¶¶ 63-72 (addressing multimode handsets and the *de minimis* rule, and expressing concern that rigid approach could

(continued on next page)

precedents governing HAC capabilities for wireline handsets. The Board can best avoid uncertainty and confusion by deferring to Commission rules and precedents in this area.

2. *Application – The Advisory Note Exceeds the Board's Statutory Authority (Draft Guidelines C103.1-C103.2 and C106)*

The Board states that the Guidelines "appl[y] to telecommunications and interconnected VoIP and CPE," and manufacturers of those products. An Advisory Note, however, indicates that the Board intends that these requirements would cover not just those services covered by the FCC's existing Part 6 and Part 7 rules, but "other products that support two-way voice communication, such as intercoms and 2-way radios" and "[a] range of products … beyond those typically thought of as telecommunications devices" such as VoIP systems that "involve use of web interfaces, thus evoking both electronic content design provisions and the associated electronic content exceptions," as well as "[p]roducts such as instant messaging that support real-time conversation in other modes …."[43]

TIA/CTIA strongly oppose this Advisory Note to the Draft Guidelines. While the named products may be covered under Section 508, the Advisory Note goes beyond the scope of both Section 255 and the Commission's Parts 6 and 7 rules by including information services such as instant messaging. Also, the reference at Draft Guideline C106 to WCAG 2, which focuses on web content, is relevant to "information services" only – and thus inapplicable to Section 255 and telecommunications equipment and CPE.[44] Some of the products listed in the Advisory Note, moreover, are typically associated with *non-common carrier* private radio products and

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compel a manufacturer to "withdraw some of its existing products from the U.S. wireless market, which 'could have the effect of retarding technological progress and limiting competition.'").

[43] *ANPRM*, 75 Fed. Reg. at 13461, Draft Guidelines at 17.

[44] Website accessibility is potentially relevant to the accessibility of a manufacturer's website for customer care and "Documentation" purposes, but not with respect to this Draft Guideline.

private network systems – which may be covered under Section 508, but are also not "telecommunications services" subject to Section 255.

If adopted, the Advisory Note would thus create uncertainty among manufacturers, service providers and consumers as to which devices are subject to the Guidelines. Moreover, the Advisory Note reflects a departure from the Board's stated intention of focusing on features and functionalities rather than individual products. TIA/CTIA urge the Board to modify the Advisory Note to simply refer to the relevant statutory provisions and FCC regulations, and confirm that the Board will continue to defer to the FCC's regulatory determinations on those matters.

3. *Meeting Section 255's Accessibility/Compatibility Requirements (Draft Guidelines C103.4 and C103.5).*

Draft Guideline C103.4 is generally consistent with the current Section 255 Guidelines, in that it reiterates Section 255's focus on "direct" accessibility, i.e., built-in features and functionalities. The Board should ensure that its Guidelines reflect the current marketplace for accessibility features, which is much more diverse than when the current Guidelines were first adopted. While "applications" involving the use of web interfaces are not subject to Section 255 or the Guidelines, accessibility features are increasingly available via Application Programming Interfaces ("APIs") and software or application downloads. Such applications should not be grouped together with the "peripheral devices and specialized CPE" described in the Draft Guidelines but instead be deemed "accessibility" methods in their own right, just like an "out of the box" screen reader or Text-to-Speech capability pre-programmed into the device.

In this regard, FCC staff recently released a Working Paper explaining that "Companies are … developing Application Programming Interfaces ("APIs") which allow mainstream products to have [assistive technology ("AT")] plug-ins from third party developers, often

yielding more efficient and affordable accessibility solutions than dedicated AT devices."[45] The Board should ensure that the Guidelines permit manufacturers of telecommunications equipment to consider the availability of application-based solutions that are already providing persons with disabilities new opportunities to access the products and services of their choice, by enabling them to customize their user experience for their individualized needs.[46]

TIA/CTIA also note that that Draft Guideline C103.4 is coupled with an Advisory Note (C103.4.1) citing to the "financial resources of the *telecommunication service provider* or manufacturer" as relevant factors under the readily achievable standard.[47] While this may be a simple drafting error, such a requirement would be contrary to Section 255, as a service provider's financial resources are immaterial to whether compliance is readily achievable to a manufacturer (and vice-versa). In any event, Section 255 leaves readily achievable determinations to the FCC's enforcement. Therefore, TIA/CTIA recommend that the Board delete Advisory Note C103.4.1 in its entirety.

Draft Guideline C103.5 generally would prohibit changes that decrease the accessibility, usability or compatibility of a product, although discontinuation of a product is not prohibited.[48] TIA/CTIA strongly support this Draft Guideline, which is critical to preserving innovation and enabling manufacturers to quickly respond to consumer needs and demands. The Board should also clarify that the replacement of one accessibility feature with another feature that preserves

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[45] *See* Elizabeth Lyle, OBI Working Paper Series, Working Paper 2, *A Giant Leap & A Big Deal: Delivering on the Promise of Equal Access to Broadband for People with Disabilities*, at 13 (FCC OSPPA April 2010), available at http://download.broadband.gov/plan/fcc-omnibus-broadband-initiative-(obi)-working-report-giant-leap-big-deal-delivering-promise-of-equal-access-to-broadband-for-people-with-disabilities.pdf.

[46] *See* CTIA H.R. 3101 Testimony at 5-6.

[47] *See ANPRM*, 75 Fed. Reg. at 13461, Draft Guidelines at 18 (emphasis added).

[48] *ANPRM*, 75 Fed. Reg. at 13461, Draft Guidelines at 18.

the accessibility of the device for individuals with a particular disability does not implicate this Draft Guideline. As technologies move from analog and digital to IP-based, manufacturers require the flexibility to meet accessibility needs through different features and methods.

4. *The Board Should Focus on Flexible Technical Requirements as the Principal Criteria for Per Se Compliance (Draft Guideline C103.6)*

This Draft Guideline states that "[a] manufacturer should first look to the provisions in Chapters 3 through 9 to determine if there are specific technical provisions that apply to the ICT need they are seeking to satisfy."[49] Thus, as proposed, compliance with the technical provisions will *per se* meet the functional performance criteria of Chapter 2. Otherwise, the manufacturer must then determine the applicable functional performance criteria and see if accessibility can be provided through "Equivalent Facilitation" of Draft Guideline C105.[50] TIA/CTIA generally support the Board's intent and objective, which has potential for providing manufacturers, software and application developers clarity and certainty with respect to meeting Section 255 regulatory obligations. These objectives can be achieved, however, only if the Board's "technical provisions" at Chapters 3-9 are clearly stated and do not hamstring technology or deter innovation by, for example, locking-in manufacturers and service providers to legacy TTY or Baudot technologies.[51]

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[49] *See* Draft Guidelines at 18-19.
[50] *See id.*
[51] *See also infra* discussion of *ANPRM* Question 10 at Draft Guideline 202.1.

5. *The Board Should Preserve Flexibility to Meet Information, Documentation and Training Requirements (Draft Guideline C104).*

Draft Guideline C104 is similar to the current Guidelines, although a new proposed Advisory Note would elaborate further that "People with disabilities may use a variety of communication technologies in addition to using alternate methods of communication. Examples of such communication technologies include: Internet posting (such as message boards and website blogs), cellular telephones, two-way radios, e-mail, fax, postal mail, texting, and instant messaging."[52] TIA/CTIA generally support these Draft Guidelines, as well as ongoing efforts under consideration before the FCC to improve the product information available to consumers.[53] The draft Advisory Note reiterates what TIA/CTIA already know. Individuals with disabilities use many technologies to communicate – indeed, persons with disabilities are often early and creative adopters of such technologies.

It is critical that manufacturers have flexibility to meet these requirements in different ways, based on their subscriber demographics, resources, and other relevant factors. One manufacturer may find it more effective to correspond with consumers via e-mail, another via Instant Messaging or a click-to-chat application. Products evolve rapidly, and a company blog may be a more effective means of conveying information on new products, features or applications than the URL associated with a particular equipment model. Electronic communications also raise issues of security and consumer privacy different than, for example, a

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[52] *See ANPRM*, 75 Fed. Reg. at 13461, Draft Guidelines at 19-20.

[53] The FCC has already initiated efforts to implement its Accessibility Innovation Forum, a Clearinghouse of accessibility information, and other informational efforts, which TIA and CTIA both strongly support. *See* FCC Staff Blog Postings, available at http://blog.broadband.gov/?categoryId=13843; FCC Comments of TIA in GN Docket No. 10-100, at 2-4 (filed June 10, 2010); CTIA Clearinghouse Comments at 9-12.

live customer care call. Manufacturers need to account for these factors as well in determining the appropriate means of communicating with subscribers.

The Board should also clarify that participation in third party clearinghouse efforts will validly contribute to a manufacturer's compliance with the Board's documentation Guidelines. Such resources can be particularly useful and convenient for persons with disabilities, and may provide a more meaningful means of communicating information to some consumers – and prove more cost-effective to the manufacturer – than traditional methods. Many individual manufacturers and service providers already participate in existing industry-wide informational efforts, such as CTIA's AccessWireless.Org website and the Mobile Manufacturers Forum Global Accessibility Reporting Initiative ("GARI").[54] As noted above, the FCC itself has announced it intention to launch such a Clearinghouse later this year – an effort TIA/CTIA both strongly support.

6. *Several Definitions Should Be Modified (Questions 8-9, Draft Guidelines C109-C110)*

TIA/CTIA generally note that a number of the defined terms in the Section 255 Guidelines are also used for Section 508 purposes but have different definitions which apply to each section. Given the Board's stated intention of consistency between the technical provisions of Section 508 and Section 255, it should either make the terms consistent or explain the reason for the distinction and, again, ensure that those provisions are accurately "mapped" throughout the remaining chapters. Concerns regarding specific definitions in the Draft Guidelines follow.

- ***Information and Communication Technology ("ICT").*** The ICT definition is very broad and includes equipment used for telecommunications and information services, as well as video services and technologies that may not fall into either. This will create

[54] *See* http://www.accesswireless.org/ and http://www.mobileaccessibility.info/.

confusion, as the various functional and technical provisions throughout the draft Guidelines refer to "ICT" generally, as opposed to the terms "CPE" and "telecommunications equipment" that govern for Section 255(b) purposes.

- ***Large Scale Font***. The Board should allow for flexibility, as the 14/18 point font standard may not be feasible for many mobile/handheld devices. The larger the font, the less screen space available, which can adversely affect the usability of the information on the screen. In addition, font size alone is not the appropriate standard; font type, as well as size, is a relevant consideration for persons with low vision.

- ***Real Time Text ("RTT").*** The RTT definition, by defining the application in terms of individual character input rather than functionality, would effectively lock in manufacturers and service providers to a particular technology standard that is derived more from the TTY experience than today's user needs. Problems with this approach are discussed in more detail below at Section IV and Attachment 2.

- ***Terminal.*** The definition should have the word "software" removed, as this is redundant. Moreover, this definition is inconsistent with the use of the term at Draft Guideline 902.6.

- ***Keyboard.*** This definition appears to presume that a keyboard device will have tactile functionality. The requirement for "tactilely discernible keys" may reflect the fact that, during the TEITAC's early deliberations, there was not a proliferation of touch-screen devices and, thus, there were natural concerns from the blind community concerning the accessibility of such devices. Given the plaudits for a variety of today's touch-screen mobile handset devices from groups representing the blind and visually impaired, however, it is this proposed definition should be revised so that it does not exclude touch-screen devices outright.[55]

- ***Typically Held to the Ear.*** The definition of "Typically Held to the Ear" in the TEITAC Report also included clarifications that "headphone and headsets that connect to a product via a standard connector are not considered products that are 'held up to the ear' but rather alternative speakers to a device" on the basis that "users can substitute other headphones or headsets or neck loops that meet their individual needs and can use them with the product." This should be reincorporated into the definition, consistent with legislation recently introduced in the U.S. Senate and reflective of joint industry-

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[55] Darren Burton, *Can an Android Make Your Mobile Phone Accessible?* and *A Review of Oratio: A Screen Reader for BlackBerry*, Vol. 11 AMERICAN FEDERATION OF THE BLIND ACCESSWORLD No. 2 (May 2010) http://www.afb.org/afbpress/pub.asp?DocID=aw110202 (last visited June 5, 2010); Press Release, National Federation of the Blind, *National Federation of the Blind Commends Apple for Including VoiceOver on iPad* (Jan. 28, 2010) *available at* http://www.nfb.org/nfb/NewsBot.asp?MODE=VIEW&ID=545 (last visited June 5, 2010).

consumer group consensus, which would use the term "intended to be held to the ear in a manner functionally equivalent to a telephone …."[56]

- ***ATSC/BTSC Standards.*** Draft Guideline C110 includes references to ATSC (C110.2.1) and BTSC (C110.2.5) standards for advanced and analog broadcast television, which are irrelevant to Section 255.

II. TIA/CTIA GENERALLY SUPPORT THE FUNCTIONAL CRITERIA OF CHAPTER 2, BUT THE BOARD MUST MORE CLEARLY ACCOUNT FOR THE SCOPE OF SECTION 255

A. The Board Must Clarify and Contain the Scope of the Functional Criteria (Questions 10 and 15, Draft Guidelines 201 and 202.1)

At Question 10 of the *ANPRM*, the Board seeks "comment on how the functional performance criteria should be implemented in relation to the technical provisions" and if the approach at C103.6 "is confusing, how could it be made less confusing?"[57] As noted, the Board's proposed approach, whereby compliance with the technical provisions is presumptively compliant with the statute, makes it particularly important that the "technical provisions" do not hamstring technology or deter innovation. Consistent with the previous section, the Board could mitigate confusion in large part by clearly "mapping" the Guidelines intended to apply to Section 255, 508, or both.

At Question 15, the Board seeks "comment on whether cognitive disabilities are sufficiently addressed in the functional performance provisions and seeks suggestions on how the requirements might better address the accessibility needs of individuals with cognitive disabilities."[58] At the TEITAC, which ultimately recommended further research into the issue, industry expressed concern for the scope of cognitive disabilities potentially covered by the

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[56] *See Equal Access to 21st Century Communications Act*, 111th Congress, S.3304, § 102(a)(1) (as introduced May 4, 2010).
[57] *ANPRM*, 75 Fed. Reg. at 13462.
[58] *Id.*

Guidelines.[59] TIA/CTIA submit that functional performance criteria for cognitive disabilities should not be imposed at this time, given uncertainties concerning scope and testability. The Board can help to address this issue, however, by identifying, in its Advisory Notes, the particular features that may be helpful for certain cognitive disabilities.[60]

Regarding Draft Guideline 202.1, the Board posits that "More and more products are now multi-functional. For example, many devices allow users to make telephone calls, send text messages, and access the Internet."[61] The Board also states that, for this reason, it "is considering requiring that each mode of operation of a product meet the functional performance criteria."[62] The Board cannot adopt such an approach with respect to its Section 255 Guidelines given the inapplicability of Section 255 to information services. While such an approach may be appropriate for Section 508, insofar as it would apply to information services (*e.g.* Internet access) as well as telecommunications service functionalities, the Board would exceed its Section 255 authority.

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[59] *See* TEITAC Report § 5.6; Panasonic Minority Report to TEITAC Report, Appendix.

[60] *See* Statement of Jim Mueller, Wireless RERC, Access Board May 12, 2010 Public Hearing, Transcript at 15 (recommending Guidelines be modified "to call attention to those provisions for people with physical or sensory disabilities, that are also deemed to enhance usability for people with cognitive disabilities"). TIA/CTIA understand that there are many existing features – e.g., controls that allow for repetition, simpler keypads – that may help to address this concern. *See* CTIA H.R.3101 Testimony at 20 (describing a number of features that are helpful for persons with cognitive disabilities); Jim Mueller Public Hearing Testimony, Transcript at 14-15 (describing many desired features that are already widely available and additional features that are helpful to some persons with cognitive disabilities).

[61] *ANPRM*, 75 Fed. Reg. at 13462.

[62] *Id.*

B. Several of the Proposed Disability-Specific Functional Criteria Warrant Clarification (Draft Guidelines 202.2-202.10)

The Board's Draft Guideline 202.3 (With Limited Vision) and the accompanying Advisory Note, which call for a "blindness" standard of central visual acuity of 20/200 or less, do not correspond with the Technical Criteria. Draft Guideline, 704.3.1, for example, would establish 20/65 visual acuity as the threshold. The Board should ensure that these thresholds are consistent throughout.

Draft Guideline 202.6 (With Limited Hearing) includes an Advisory Note clarifying that where a product "offers an auditory mode of operation … at least one mode of operation in an enhanced auditory fashion by reducing background noise, improving clarity, and providing user control of amplification" would be required.[63] At Question 13, the Board states it "is interested in comment on the proposed change to improve access for individuals with hearing impairments, including information on the benefits and costs associated with this change."[64] At the Advisory Note, the Board should remove the term "reducing background noise" or clarify what it means by that provision. At minimum, the Board should modify this Advisory Note to limit the relevant "background noise" to that attributable to the device itself. What consumers consider "background noise" may be unrelated to the device being used, but may instead relate to elements in the network over which the device manufacturer – or for that matter the customer's service provider – has no control.

Draft Guidelines 202.8 (With Limited Manipulation) and 202.9 (Limited Reach and Strength) also require clarification. Specifically, Draft Guideline 202.8 does not define the term

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[63] Draft Guidelines at 30.
[64] *ANPRM*, 75 Fed. Reg. at 13462.

"fine motor control" and Draft Guideline 202.9 does not define "limited reach and strength."[65] The vagueness of these terms creates uncertainty with respect to testability.

Draft Guideline 202.10 (Without Physical Contact) is a new proposal which, the Board posits, is appropriate to consider because of the "many types of technology now available that do not require physical contact, such as Bluetooth and wireless connectivity."[66] TIA/CTIA members have a number of concerns regarding this provision:

- At Question 14, the Board states it "is interested in comment on the proposed new provision to improve access for individuals who are unable to make contact with a product, including information on the benefits and costs associated with this change."[67] The Board does not, however, clarify what population or demographic is covered by this Draft Guideline, and there is insufficient understanding of how such users interact with CPE to impose regulatory standards. If the Board's focus is on persons who cannot reach out with their limbs, then the Draft Guideline should be revised substantially if not eliminated, given the technical solutions that are already likely incorporated in Chapters 3-9.

- While the TEITAC was unable to reach consensus on this provision, the TEITAC Report reflects an understanding that voice dialing or voice control would be a form of direct access for compliance purposes;[68] the Draft Guidelines do not appear to incorporate this language. It is important that the Guidelines and Advisory Notes provide concrete guidance for manufacturers. Where, as here, there is guidance that has already been supported by accessibility advocates and industry alike, such clarification should be incorporated into the Guidelines.

- The Advisory Note for Exception 1 provides that "[a] customized interface may not be part of the default configuration." Users are increasingly able to individualize their devices such that a product can be customized with various features "straight out of the box." In addition, classifying "customized interface devices" to include all "information technology" is overly broad, as accessibility features such as "voice recognition software" are increasingly becoming routine. TIA/CTIA are concerned regarding the implications of this proposal.

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[65] Draft Guidelines at 31.
[66] *ANPRM*, 75 Fed. Reg. at 13462; Draft Guidelines at 31.
[67] *ANPRM*, 75 Fed. Reg. at 13462.
[68] *See* TEITAC Report at Chapter 7.

Finally, Draft Guideline 202.11 (Minimize Photosensitive Seizure Triggers) is unnecessarily ambiguous. To provide for certainty and testability, TIA/CTIA suggest revising the text to provide that "Equipment shall provide at least one mode of operation that avoids documented triggers for photosensitive seizures." This would ensure that the scope of the existing Guideline remains encompassed,[69] while enabling manufacturers to focus on triggers for which there is testable information available.

III. CHAPTER 8 – AUDIO OUTPUT FROM HARDWARE/HEARING AID COMPATIBILITY

TIA/CTIA provide detailed recommendations for the Draft Guidelines in this Chapter at Attachment 1. In considering these Guidelines, the Board needs to monitor FCC developments, as that agency has stated it intends to initiate a review of its Hearing Aid Compatibility ("HAC") rules later in 2010, during the Board's proceeding. The FCC is also expected to address the treatment of multimode handsets in the near future. The Board should ensure that it is not working at cross-purposes with the Commission. In addition, and as noted above, the Access Board must abide by the FCC's policies and precedents underlying its HAC rules, which account for, among other things, technical feasibility and cost considerations, the status of industry standards, as well as device innovation.[70] These factors are also supported in legislation introduced in the U.S. Senate, S.3304, which reflect discussions among industry and consumer groups.[71] The Board should ensure that the consensus based approaches reached on these issues are also reflected in the Guidelines.

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[69] *See* 36 C.F.R. § 1193.43(f).
[70] *See supra* at Section I.D.1.
[71] *See* S.3304 § 102.

TIA/CTIA also are concerned that many of the Draft Guidelines at Chapter 8 would, among other things: impose technical standards that are not applicable to the particular technology or feature at issue; lock manufacturers into particular technical standards and features, thus undermining innovation; and impose standards that are applicable for one technology but not others.[72] Each of these concerns is reflected throughout TIA/CTIA's comments at Attachment 1.

IV. CHAPTER 9 – CONVERSATION FUNCTIONALITY AND CONTROLS – REAL-TIME TEXT AND OTHER FEATURES

Detailed recommendations and comments on individual Guidelines in Chapter 8 are provided at Attachment 2. In our Minority Report, TIA/CTIA cautioned that RTT technologies involved "multiple competing standards that mimic legacy TTY functionality" and "it would be a misplaced use of resources to require products to be able to communicate via [RTT] with public safety answering points until such time as public safety response systems are able to receive [RTT]."[73] TIA/CTIA thus urged that the Board "exercise caution in the development of technical requirements for [RTT] at this time."[74] Consistent with these recommendations, as well as recent FCC actions, in the near term RTT technologies should prioritize support for emergency services.[75] In that regard, requiring a specific transmission standard in the absence

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[72] For example, one technical standard may work more effectively for digital CDMA technology than GSM.

[73] *See* Minority Report at 6.

[74] *See id.*

[75] Among other duties, the FCC's Communications Security, Reliability and Interoperability Council ("CSRIC") is required to "develop and recommend best practices to facilitate the communication of emergency information to the public, especially people with special needs such as people who do not speak English, individuals with disabilities, the elderly and people living in rural areas." Charter of FCC's CSRIC *available at* www.fcc.gov/pshs/docs/advisory/csric/csric-charter-final.pdf (last visited June 5, 2010); *see also,*
(continued on next page)

of interoperable emergency services platforms, such as 9-1-1, puts the proverbial cart before the horse. RTT technologies for commercial offerings, moreover, are evolving and still being tested. The adoption of disparate public safety and commercial RTT standards would require either significant additional public or private investment by the PSAPs or commercial operators, or development of yet a third RTT standard. Thus, it is essential to ensure that public safety systems and commercial technology are interoperable and can accommodate one another. Otherwise, there is a risk that RTT users will be relegated and locked into "Version 1.0" before the needs of the affected community are better understood. At this point, however, the public safety community has not coalesced around a specific standard, and it will be some time before PSAPs will be able to handle such information.

Another of the Board's objectives in Chapter 9 should be ensuring that its Guidelines facilitate the transition from traditional TTY devices to IP-based technologies, and do not impose backward-compatibility obligations that deter innovation. TIA/CTIA's concern is that the Draft Guidelines have prejudged the appropriate and available standards in a manner that could compel the use of a particular standard that may not be implemented outside the U.S. It is noteworthy that Canadian regulators determined that, for 9-1-1 purposes, "RTT and its underlying technology require further maturation prior to being considered for a [text-based 911] service."[76] The Canadian Radio-television and Telecommunications Commission ("CRTC") thus declined to identify a solution for RTT. The Board should also be mindful of the European Union's

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National Emergency Number Association ("NENA"), NG9-1-1 Project, Operations Development – Accessibility Committee, http://www.nena.org/operations-committee-accessibility (last visited June 5, 2010).

[76] *See* Canadian Radio-television and Telecommunications Commission , Interconnection Steering Committee (CISC), *Text Messaging to 9-1-1 (T9-1-1) Service*, Report No. ESRE0051, § 6.4 (January 21, 2010), available at http://www.crtc.gc.ca/eng/archive/2010/2010-224.htm.

Reach 112 efforts, which will be issuing recommendations on RTT and related interoperability issues during 2012; disparate standards in Europe and the Americas would complicate production of new equipment and not serve the interests of consumers.

Finally, pending proposals on network neutrality also have implications on the provision of RTT capability with respect to, *e.g*. the proposed delay and error rate standards at Guideline 902.6. To the extent network management techniques are necessary to ensure compliance with these standards, legal restrictions on such techniques may preclude their viability as attainable standards. In addition, the Board should affirm that RTT is not the *only* means by which manufacturers can make their handsets accessible for the deaf and hard of hearing. For example, RTT may not make sense for a mobile handset with a touch screen keypad that fills all or nearly all of the screen, and some mobile operating platforms are likely to be more amenable to RTT than others.

CONCLUSION

TIA/CTIA request that the Board consider the foregoing recommendations, as well as the detailed comments provided in the attachments, in drafting its proposed rules in the forthcoming Notice of Proposed Rulemaking.

Respectfully submitted,

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TIA/CTIA COMMENTS – ATTACHMENT 1
SPECIFIC COMMENTS/RECOMMENDED CHANGES TO CHAPTER 8

Guideline	Comments
801.1 Scope of Chapter 8	There are product specifications and requirements throughout this chapter for which no measurement procedures exist today. All audio output is not the same but, for example, music and speech applications are both covered by this Chapter. TIA/CTIA are concerned that imposing standards for speech applications to music listening acceptance limits (or vice versa) does not provide good results. For music applications, the industry standards are electronic safety standards. Wireless phones use other different standards, e.g. ITU-T, 3GPP, all of which have different test methods and limits. Thus, the Board should not impose a single limit or standard for all applications, but instead allow for different limits for different applications and features (e.g. EF 50332 for music applications; wireless voice standards (e.g. 3GPP, ITU-T), and the applicable standards for TV standard, ring tones and gaming. While standards for Interconnected VoIP telephones are addressed in Chapter 9, TIA/CTIA note here that the proposed use of the G722 codec for Interconnected VoIP devices is problematic. As some handsets will have both digital *and* VoIP functionality, imposing G722 will be a problem for such multimode handsets covered in this chapter. In addition, it is unclear whether the requirement applies to a terminal adaptor or to the phone, which may operate in digital format.
802.2.2 – Audio Jack	While industry appreciates the value of an available standard, by imposing a specific technology this Guideline does not provide manufacturers with sufficient flexibility to implement new and innovative solutions. TIA/CTIA thus recommend that the Guideline instead provide that "ICT designed for use in a public location shall provide a non-proprietary, standard audio jack," and the Advisory Note provide that: "Examples of standard, non-proprietary audio jacks that meet this requirement include 2.5 mm, 3.5 mm, and/or those that conform to the Japanese Industry Standard (JIS) Audio Jack C 6560 that is used internationally." Further, this Guideline applies to "ICT designed for use in a public location" which TIA/CTIA understand as applying to kiosks for use by multiple persons. TIA/CTIA request that the Board make explicit that the term does not include ICT product typically held to the ear for private conversation in a public location.

Guideline	Comments
802.2.3 – Hardware Adaptor	The term, "not designed for use in a public location" is confusing and ambiguous. Would this mean that a device designed for use in a public location would not be subject to this Guideline? TIA/CTIA request the Board to state clearly that wireless devices not designed for use in a public location, i.e. cellular or cordless handset, are not subject to this Guideline because the devices are intended for private conversation.
802.2.4 – Wireless Adaptor	TIA/CTIA recommend that the Board remove this provision. "Wireless adaptor" is a new term in the Guidelines, and the provision seems to imply that a manufacturer would be required to provide a wireless adaptor for every product. TIA/CTIA believe the Board may be envisioning Bluetooth interface in all devices. While many devices today have a Bluetooth interface, the common current practice is that the user selects the most appropriate adaptor according to his or her needs. Further, it is neither necessary nor appropriate for every device to ship with a wireless adaptor.
802.2.4.1 – Size and Battery Life	This requirement that a wireless adaptor have a similar size and battery life performance to the ICT for which it is provided is not likely achievable. In general, devices have a battery size larger than an adaptor such as a Bluetooth. This provision also runs counter to interoperability principles: if a wide range of devices are intended to interoperate, then it will be impossible to match size and battery life of all ICT and wireless adaptors unless all such devices in the entire marketplace are of similar size and battery life. This provision should thus be removed regardless of whether the general Wireless Adaptor requirement is retained.
802.2.4.2 – Without Assistance (Pairing the Adaptor)	In its current form, this Guideline is not measurable. This would require, e.g., use of a Bluetooth adaptor – which, in turn requires an initial configuration. There is also a requirement to turn power on and off which requires pressing a key. Other Guidelines appear to distinguish the use of a feature from the initial configuration. TIA/CTIA recommend deleting this Guideline because it is not measurable.
802.2.4.3 – Without Cable	TIA/CTIA recommend that the Board remove this provision as a subset of 802.2.4 which would require an adaptor to ship with every device. TIA/CTIA further submit that a cable connection does *not* inhibit persons with disabilities, especially for pairing devices being held to the ear. If the Board retains this provision, an exemption for set up could address this issue in a manner that recognizes technology limits and the realities of adaptor use, as follows: "**EXCEPTION:** This provision only applies after the initial connection, configuration, and setup of the wireless adaptor."
802.3 – Adjustable Volume Control	The Draft Guideline would export wireline-based concepts and standards of the current regulatory regime into the wireless space. Wireless standards, however, do not have the

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	"baseline" concept presumed under the Guidelines. Different standards used by different vendors and different standards apply for a given use context, e.g. music, or an internal speaker. TIA/CTIA recommend that the Board include Advisory Notes explaining that: (1) multiple provisions regarding volume controls do not stipulate a requirement for multiple volume controls on a single device; and (2) a device's volume control does not have to be met via hard keys, but instead can also be controlled by hardware or software, depending on the ICT product.
802.3.1 – Speaker Audio.	TIA/CTIA recommend that the Board delete this Guideline. It is duplicative with Draft Guideline 804.1 and confusing.
802.3.2 Audio Jacks	This Guideline should be deleted. TIA/CTIA submit that Guideline 802.3 concerns adjustable volume control which occurs *in the peripheral device* connected to the audio jack, not in the audio jack itself. Section 803 has requirements that cannot be achieved in a jack. Audio jacks do not conform to magnetic and acoustic outputs but rather produce an electrical audio output signal. Depending on the device connected to the jack, the output of the audio jack could remain an electrical signal or it could be connected to a transducer which would in turn produce an acoustic and/or magnetic output. The electrical characteristics of the transducers that could be connected to the audio jack can vary greatly which would in turn produce very large variances in a transducer's resultant output characteristics in response to the audio jack electrical output signal. TIA/CTIA therefore recommend that this Guideline be deleted.
802.3.4 – Hardware Controls	TIA/CTIA recommend that the Board delete the second sentence of this Guideline, as it is redundant and does not capture the nuances of Section 307 cross-referenced in the first sentence. Consistent with that change, in the Advisory Note, the Board should replace the words "volume is within the reach of the user, in the part that a user has with them" with "complies with the applicable requirements set out in 307."
802.3.4.1 – Wireless Handset Controls	The Guideline provides that "Wireless products shall provide volume control in a handset." This prescription of "in a handset" does not allow for multiple methods for user-adjustment of volume control and therefore should be removed.
803 – ICT Typically Held to the Ear -- 803.2 – Volume Gain	Generally, the Board should ensure that it accounts for all the intended beneficiaries of a given standard – which include persons without hearing loss. This Guideline does not account for varying use cases of volume and gain (e.g. phone call using headset, phone call using speakerphone, ringtones, multimedia, etc.), and does not harmonize with existing standards

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	for products covered by this Guideline. The Board should thus account for the various use cases and harmonize with or defer to the existing standards followed by ICT vendors. The Board must also account for the fact that hearing *safety* is a principal objective of the standards, and no Board-adopted guideline should violate the acoustic shock safety standard. The Draft Guideline, however, appears to target users with hearing loss who do not wear hearing aids – and thus appears to conflict with requirements for acoustic shock protection. Thus, EN50332 is the most technically valid standard. In the case of volume gain, there is a transition occurring in the Wireline Industry (wireline, cordless and VoIP) to measure volume gain based on "Conversational Gain." The pertinent standard is IEEE approved draft 269 which specifies testing for analog and digital wireline handsets. IEEE approved draft 269 will be published in July 2010. The Conversational Gain measurement method will be introduced to other standards bodies for wireline in the coming months. TIA/CTIA recommend that Conversational Gain be considered as the method of measurement for volume gain for Wireline devices. To assist the Access Board, TIA/CTIA attach to these comments an Appendix explaining this new approach. Conversational Gain is not recommended at this time for measurement of volume gain for Wireless technologies such as cellular because the new standard has not yet been vetted in relevant wireless standards committees. It is simply premature to recommend Conversational Gain for use with Wireless technologies. Lastly, measurement of Conversational Gain will be part of the discussions with the FCC by industry regarding an update to the Part 68 requirements within the anticipated FCC review of HAC later this year. Finally, ¶ 4 of this Guideline references the "baseline volume" of a device – again, a concept that does not apply to mobile wireless; the Board should modify this Guideline to explicitly apply to "cordless, wireline and VoIP telecommunications products …."
803.2.1 – ICT with Two Way Voice Communication.	Again, there is no baseline volume concept for wireless devices, and the reference should be removed. The Board should instead apply the following approach: "ICT with two way voice communication shall provide a volume gain that complies with the applicable standard for

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	that ICT product." In addition, the text of the Advisory Note should be modified to read as follows: "Examples of applicable standards include 3GPP ETSI TS26.131/132 and 3GPP2 C.S0056-0 for wireless phones, and BS EN 50332-1:2000 for sound system equipment in portable audio equipment."
803.2.2 – ICT with one Way Audio Output	TIA/CTIA understand this provision as not applicable to wireline or wireless telephony, but rather to kiosks and baby monitors which have only one way audio output. However, if the Board believes this provision somehow does apply, as noted above, the Access Board should consider using Conversational Gain as the measurement for wireline and note that baseline audio is not applicable to cellular as a way to measure. Specifically, TIA/CTIA recommend replacing the term "adjustable to a minimum of 18 dB over baseline volume" with "complies with the applicable standard for that ICT product." In that regard as well, the Advisory Note should be modified to read as follows: **"**Examples of applicable standards include 3GPP ETSI TS26.131/132 and 3GPP2 C.S0056-0 for wireless phones, and BS EN 50332-1:2000 for sound system equipment in portable audio equipment."
803.3 – Incremental Volume Control	TIA/CTIA generally support the Board's objective, but imposing 12 dB as an exact intermediate gain is problematic. Multiple degrees/tolerances are needed. TIA/CTIA thus recommend simplifying the Guideline to provide that "ICT with two way voice communications shall provide incremental volume control with multiple volume increase increments."
803.4 – Automatic Reset.	The concerns mentioned with respect to 803.2.1 – the absence of a "baseline volume" approach for wireless devices – are relevant here as well. In addition, not all devices have auto reset; e.g., devices with mechanical controls such as wheels cannot auto reset. Moreover, the term "after every use" is undefined. Does the Board intend that the volume must reset in between songs or video for a media player? In between exit of the application? Or for telephone calls and other two-way voice communications? TIA/CTIA notes that this provision in the TEITAC was originally written with *calls* in mind, and should be restructured if intended for wider application. TIA/CTIA recommend that the clause be limited in its application to the context of ICT available for public access, and that it is stipulated it does not apply to wireless devices such as cell phones. Also, for conditions (a) and (b) of the Exception, in order to be measurable, it would be helpful for the Board to

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	provide guidance on appropriate activation force and luminance thresholds.
803.5 – Magnetic Coupling	Manufacturers are already meeting this requirement under the Hearing Aid Compatibility Act and the FCC's implementing rules, and expend substantial effort and resources to ensure customers with hearing aids can use their products. The FCC's requirements are the result of extensive deliberations among stakeholders and a careful balancing of various public interest considerations by the agency. The FCC will initiate yet another reexamination of these requirements during 2010. The Board should not second-guess these efforts given its limited role here. The Guidelines should also permit *non-magnetic* coupling, such as Bluetooth or FM, as a compliance alternative. This provision should not supersede the existing requirements and compliance efforts underway, and should exempt ICT vendors whose products are covered under the scope of the HAC Act. The Board should thus include an explicit Exception providing that **"**Vendors of ICT that are currently required to comply with FCC requirements promulgated pursuant to the Hearing Aid Compatibility Act, 47 U.S.C. § 610, 47 C.F.R. § 20.19, are exempted from this requirement." Further, the Advisory Note for this Draft Guideline should be removed pending further study of the various products. The headset accessories listed in the Note have never been tested and no such method exists. There is no standard for headsets for coupling, and TIA/CTIA question whether this could be accomplished. Indeed, TIA is not aware of a use case for this headset requirement. In short, further study needed for such a requirement.
803.6 – Minimize Interference	As with magnetic coupling, this provision should not supersede the existing requirements and compliance efforts underway, and should exempt ICT vendors whose products are covered under the scope of the HAC Act. The Board should thus include an explicit Exception providing that **"**Vendors of ICT that are currently required to comply with FCC requirements promulgated pursuant to the Hearing Aid Compatibility Act, 47 U.S.C. § 610, 47 C.F.R. § 20.19, are exempted from this requirement." With respect to wireline telephones, TIA-1083 applies to all wireline telephones, not just digital cordless. Thus, the relevant text should exclude the word "cordless" and read as follows: "ICT in the form of digital wireline devices shall conform to TIA-1083."

Guideline	Comments
804.2 – Volume Gain	There is presently no standard for this requirement. Most speaker phones use base line as maximum volume. Further, the 15 dB numbers proposed in the Draft Guideline are not achievable in the vast number of products. Nor is it feasible to achieve 15dB above baseline for automatic reset. TIA/CTIA note, however, that TIA is nearing conclusion of development of a speakerphone standard for some, but not all, ICT products. TIA/CTIA thus recommend that the Board provide simply that "ICT shall provide volume that complies with the applicable standard for the ICT product." In that regard as well, the Advisory Note should be modified to more explicitly reference applicable standards examples: "Examples of ICT with audio output that is not typically held to the ear are speakerphones, information kiosks, and information transaction machines. Examples of applicable standards include 3GPP ETSI TS261.131/132 and 3GPP2 C.S0056-0 for wireless phones, and BS EN 50332-1:2000 for sound system equipment in portable audio equipment."
804.3 – Incremental Volume Control	The Draft Guideline indicates device must reach exactly 15 dB gain. This is problematic given the variety of device and volume control types. TIA/CTIA recommend that the Board instead provide simply that "ICT shall provide incremental volume control with multiple levels of volume increase increments."
804.4 – Automatic Reset	Generally, this section should align with 803.4. TIA/CTIA also recommend that the Board adopt the following Exception, which generally reiterates established FCC precedent: **EXCEPTION:** ICT with audio output that is not typically held to the ear shall not be required to conform to 804.4 if it also provides a manual override control that prevents the automatic reset and that conforms to one or more of the following requirements: 1. The volume reset override switch shall be labeled as such and located on the ICT in such a way as not to be accessible to accidental engagement; 2. A bright indicator light shall be prominently displayed on the front of the ICT and shall light up when the override is engaged and the ICT is placed in an off-hook condition; 3. A warning shall be placed next to the light indicating that the amplification is

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	at a high level; 4. A visual indication of the volume adjustment is displayed in the graphical user interface; 5. A caution on the use of the volume reset override switch shall be included in the users' manual; and 6. The ICT shall include a warning embossed in Braille that can be securely attached to the back of the handset, or, if the ICT has only a headset, above the dial buttons, to indicate that a high volume setting may be engaged.

ATTACHMENT 1 – APPENDIX

BACKGROUND

The U.S. Access Board's "*Draft Information and Communication Technology (ICT) Standards and Guidelines*," hereafter referred to as the "Draft Guidelines," contains the following provision:

> **803.2.1 ICT with Two Way Voice Communication.** ICT with two way voice communication shall provide a volume gain that is adjustable to a minimum of 18 dB over baseline volume. The baseline volume shall conform to ANSI/EIA-470-A-1987 (for analog telephones) and ANSI/EIA/TIA-571-1991 (for digital telephones) (incorporated by reference, see "Referenced Standards and Guidelines" in 508 Chapter 1 and 255 Chapter 1).

There are several problems with this Draft Guideline:

1. ANSI/EIA-470-A-1987 is referenced for analog telephones. This version of the standard is quite old, and was superseded by ANSI/TIA/EIA-470-B-1997. The handset acoustic requirements in the "B" version were, in turn, superseded by ANSI/TIA-470.110-C-2004 and the addendum ANSI/TIA-470.110-C-1 (April 11, 2007). Significant changes were made to the relevant acoustic measurement methods in the "C" revision of this standard.
2. ANSI/EIA/TIA-571-1991 is referenced for digital telephones. There is a typographical error in this reference. The correct reference is: ANSI/EIA/TIA-579-1991. This standard is also quite old, however and was superseded by TIA/EIA/IS-810 (December 1999), which was superseded by ANSI/TIA/EIA-810-A-2000, which was in turn superseded by ANSI/TIA-810-B (November 2006). Significant changes were made to the relevant acoustic measurement methods in the TIA-810 series of standards compared to ANSI/EIA/TIA-579-1991.
3. The referenced standards measure "Loudness Ratings" at a "reference" or "nominal" volume control setting which serve as a baseline measurement and are basically intended to be equivalent to the performance of an unamplified telephone (e.g. 500 set). The "Loudness Ratings" are then measured at the maximum volume control setting. The difference in the "Loudness Ratings" for the two volume control settings are then used as the measured volume gain. The calculated "Loudness Rating" values are not a direct measurement of the acoustic output level and therefore their relation to the actual acoustic output level of the phone is not intuitive to the consumer.

PROPOSED METHOD

TIA/CTIA propose that all "Volume Gain" requirements for wireline telephones in the Access Board's Draft Guidelines be based on "Conversational Gain." The baseline for Conversational Gain is the typical sound pressure level experienced at the ear during a face-to-face conversation at a distance of 1 meter (specified as 64 dBSPL). To determine the "Conversational Gain" of a CPE, the acoustic sound pressure level (in dBSPL) is measured at the max (or specified) volume control setting. Then 64 is subtracted from this measured value and the difference is the Conversational Gain.

The measurement method for Conversational Gain can be found in IEEE approved draft 269. For analog phones, IEEE approved draft 269, scheduled for publication on July 15, 2010, specifies testing at three input levels:

-14dBV with a 0km loop (Loud)

-25dBV with a 2.7km loop (Nominal)

-38dBV with a 4.6km loop (Quiet)

For digital phones, IEEE approved draft 269 specifies testing at three input levels:

-10dBm0 (Loud)

-20dBm0 (Nominal)

-35dBm0 (Quiet)

TIA/CTIA propose that the Draft Guidelines specify the Volume Gain (Conversational Gain) requirements using only the *"Nominal"* input level (analog: -25dBV with a 2.7km loop, digital: -20dBm0). It is important that a single value be used for Volume Gain in order to simplify the requirement and to avoid confusing the consumer. Specialized CPE (commonly referred to as "amplified telephones") are designed to provide high amounts of Conversational Gain at the "Nominal" and "Loud" input levels. Specialized CPE are also designed to provide higher than usual amounts of Conversational Gain at lower input levels (such as the "Quiet" input level). Manufacturers of this type of specialized CPE can emphasize their high gain values under these low input level conditions to help differentiate their specialized products from typical telephones.

When Conversational Gain is used to specify the volume gain of a CPE, the consumer can simply add 64 to the gain and determine the specified sound pressure level at max volume in dBSPL. Also, the maximum acoustic output level of various types of devices (e.g. handsets and speakerphones) can be compared when they are all measured using Conversational Gain. Thus a handset telephone with a Conversational Gain of 20dB should sound approximately as loud as a speakerphone with a Conversational Gain of 20dB.

TIA/CTIA further propose that the Conversational Gain reference for wireline telephones designed to be coupled to only one ear (e.g. handset) use a reference of 70 dBSPL while all other devices that are intended to be heard by both ears (e.g. speakerphone) use the 64 dBSPL reference. This is based on the fact that a sound must be 6dB louder when heard in only one ear in order for it to be perceived to be as loud as a sound that is heard with both ears.

CONCLUSION

The Access Board's effort to revise its Guidelines provides a unique opportunity for industry to update how volume gain is specified for wireline CPE. Using Conversational Gain would help to eliminate the confusion that currently exists among consumers regarding amplification ratings and would help to improve the consumer's ability to identify products that have adequate amplification for their specific needs.

TIA/CTIA COMMENTS – ATTACHMENT 2
SPECIFIC COMMENTS/RECOMMENDED CHANGES TO CHAPTER 9

Guideline	Comments
902 Real-Time Text (RTT) Functionality -- 902.1-902.2 General Obligation and Interoperability	This Guideline states that "ICT that provides real-time voice conversation functionality shall support real-time text (RTT) functionality and shall conform to" the other provisions of this section. TIA/CTIA recommends modifying this Guideline to as follows: "ICT that provides real-time voice conversation functionality shall provide, directly or indirectly, one mode of operation that supports real-time text (RTT) functionality and conform to Section 902." In addition, 902.2 concerning interoperability should be eliminated as redundant with 902.4.
902.3 – RTT Reliability	This section imposes reliability requirements for RTT systems, with an Advisory Note providing further that "A best practice is for voice terminal hardware and software to minimize interference in order to maximize intelligibility of speech." RTT systems may use different protocols and methods, however, and the Board should not lock manufacturers into a single proprietary technology. TIA/CTIA thus recommend that this provision be modified as follows "ICT shall provide at least one mode of RTT communication that conforms to 902.3.1 through 902.3.5." With respect to the Advisory Note, as there has not been commercial deployment of RTT on covered ICT, best practices would not yet exist. TIA/CTIA recommend that the Board remove the sentence "A best practice is for voice terminal hardware and software to minimize interference in order to maximize intelligibility of speech."
902.3.1 – Standard RTT Format	Consistent with our general concern for this Chapter, TIA/CTIA recommend that this provision be modified as follows: "The RTT format supported by ICT to provide, directly or indirectly, a mode of RTT communication shall be a non-proprietary standard RTT format that can be supported by other terminals, routers, gateways, and other products on that platform." The Advisory Note, moreover, should include the following sentence: "Examples of non-proprietary, standard RTT formats include 3GPP TS 26.114 for cellular wireless telecommunications using IP Multimedia Subsystems (IMS) and ITU-T F.703 for Multimedia Conversation Systems for Non-Telephone Telecommunications Services."
902.3.2 – RTT Transmission Delay.	TIA/CTIA recommend that this provision be modified as follows, which is consistent with the flexible framework described above: "ICT shall support, directly or indirectly, a mode of RTT communication that transmits characters in accordance with the delay characteristics

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	specified in the applicable RTT format for the platform." Additionally, the Advisory Note should include the following: "Examples of non-proprietary standard RTT formats include 3GPP TS 26.114 for cellular wireless telecommunications using IP Multimedia Subsystems (IMS) and ITU –T F.703 for Multimedia Conversation Systems for Non-Telephone Telecommunication Services."
902.3.3 – RTT System Error Rate	Consistent with the above changes, TIA/CTIA recommend that this provision be modified as follows: "ICT shall support, directly or indirectly, a mode of RTT communication that transmits text in accordance with the total character error rate characteristics specified in the applicable RTT format for the platform." The Advisory Note posits that this provision is intended to address service quality during high-traffic periods. This provision is not directly within the scope of what an ICT product - or even a particular service provider vendor - can manage but relates to the network capacity of underlying third-party carriers and operators as well. Moreover, for service providers subject to Sections 255 and 508 purposes, this would be relevant only with respect to the facilities and services they control. The Advisory Note should also be modified consistent with the above changes to include the following: "Examples of non-proprietary, standard RTT formats include 3GPP TS 26.114 for cellular wireless telecommunications using IP Multimedia Subsystems (IMS) and ITU-T F.703 for Multimedia Conversation Systems for Non-Telephone Telecommunication Services."
902.3.3.1 – Equitable Support for RTT and Video Communications	As with the error rate, this is a network traffic/throughput requirement as well as a requirement on individual manufacturers to meet the threshold**.** Certain platforms will be unable to meet this threshold. For example, GSM technology does not support simultaneous voice and data. In order to accurately reflect the operator's control of its facilities, TIA/CTIA recommend this Guideline be revised as follows: "At peak network traffic specified for intelligible speech transmission as defined by the network operator, the ICT shall support, directly or indirectly, a mode of RTT communication that can function where speech communication and video communication are supported as defined by the applicable RTT format for the platform."

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	Consistent with the above, TIA/CTIA recommend further that the following be added: "Examples of non-proprietary, standard RTT formats include 3GPP TS 26.114 for cellular wireless telecommunications using IP Multimedia Subsystems (IMS) and ITU-T F.703 for Multimedia Conversation Systems for Non-Telephone Telecommunication Services."
902.3.4 – RTT System Speech and Text Support	This Guideline would mandate the equivalent of HCO/VCO in every single session – i.e., duplex in both directions – and implies that voice and text should be available in a single call session. It is not clear that this is feasible across platforms; GSM does not have simultaneous voice and data. Moreover, to the extent that standards exist today, these standards assume an IP network infrastructure not commonly or widely built out by service providers today. Further this requirement could not be met when combined with TIA 825-A. Consistent with the above, TIA/CTIA recommend that this Guideline be modified to read as follows: "The mode of RTT communication, together with the audio system, shall support speech and text in both directions as defined by the applicable RTT format for the platform." Further, the Advisory Note should include the following: "Examples of non-proprietary, standard RTT formats include 3GPP TS 26.114 for cellular wireless telecommunications using IP Multimedia Subsystems (IMS) and ITU-T F.703 for Multimedia Conversation Systems for Non-Telephone Telecommunication Services." With these changes, 902.3.4.1 should be removed in its entirety, as it is effectively subsumed into 902.3.4.
902.3.5 – No Audio Tone Use (for transmission of RTT over IP)	This provision conflicts with 902.4.1; If TIA 825A Baudot is used, then audio tone *must* be used. More fundamentally, the Board should not apply a framework that requires backward compatibility with TTY. The further development of TTY-driven standards and devices will prove very resource intensive, and will further delay the transition away from cumbersome and out-dated TTY technology. Consistent with the above, TIA/CTIA recommend that this Guideline be modified to read as follows: "The mode of RTT communication shall not use audio tones for transmission of RTT that conflict with simultaneous speech as defined by the applicable RTT format for the platform."

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	Further, the following Advisory Note should be added: "Examples of non-proprietary, standard RTT formats include 3GPP TS 26.114 for cellular wireless telecommunications using IP Multimedia Subsystems (IMS) and ITU-T F.703 for Multimedia Conversation Systems for Non-Telephone Telecommunication Services."
902.4 – Interoperability with Outside Systems (§ 902.4.1 – PSTN Interoperability)	This Guideline incorporates TIA 825-A Baudot; it effectively requires a device to support TTY *and* RTT and, where this exists, that RTT run through the TTY client, and that VoIP to PSTN communications would have to provide RTT. TIA 825-A, however, is a *tone* transmission of text – even as the Guidelines call for simultaneous speech and text without audio tones. §§ 902.4.1 and 902.3.5 are thus mutually exclusive. Moreover, TIA 825A is an English-only standard. Again, and importantly, the Board should not apply a framework that requires backward compatibility with TTY. To accommodate these technical realities, TIA/CTIA recommend the following modifications to the Guidelines: "When ICT interoperates with the Public Switched Telephone Network (PSTN), RTT shall use the TIA 825-A Baudot standard for TTY signals at the PSTN interface**.** In this instance, a mode of RTT communication shall conform to TIA 825-A (2003)." The following Advisory Note should be added as well: "An example of non-proprietary standard TTY formats for a platform includes TIA 825-A (2003)."
902.4.2 – VoIP Using SIP.	As noted, to the extent that standards exist today, these standards assume an IP network infrastructure not commonly or widely built out by service providers today. "RTT that conforms to a commonly used cross-manufacturer non-proprietary standard," as used in this Guideline, simply does not exist. Furthermore, there is no way to test compliance with this requirement, as there is no interoperability standard. Additionally, a person receiving a call would have no way of knowing whether call is initiated on VoIP unless within the same system. TIA/CTIA thus recommend that the Guideline be modified to read as follows: "When ICT interoperates with Voice over Internet Protocol (VoIP) products or systems using Session Initiation Protocol (SIP), or other appropriate signaling method, it shall support transmission of a mode of RTT communication that conforms to a non-proprietary standard interface as defined by the applicable RTT for the platform."

Guideline	Comments
	Further, the Advisory Note should include the following, consistent with the above: "Examples of non-proprietary, standard RTT formats include 3GPP TS 26.114 for cellular wireless telecommunications using IP Multimedia Subsystems (IMS) and ITU-T F.703 for Multimedia Conversation Systems for Non-Telephone Telecommunication Services."
902.4.3 – Other Call Control System	The term "Call control system" is not defined in this document; such systems can include various technologies, including a PBX or other automatic call routing method. Further, to the extent that standards exist today, they assume an IP network infrastructure not commonly or widely built out by service providers today. TIA/CTIA recommend that this Guideline be modified as follows: "When ICT interoperates with VoIP products or systems using a signaling method other than SIP, a mode of RTT communication shall support a non-proprietary, standard RTT protocol as defined by the applicable RTT format for the platform."
902.5 – RTT Error Rate in Pass-through Products	The Guideline in its current form requires that products such as firewalls, routers and gateways pass RTT signals "without distortion or error beyond one percent." Consistent with the above recommendations, TIA/CTIA recommend that the term "beyond 1 percent" be replaced with "as specified by the applicable, non-proprietary RTT format."
902.6 – RTT in Voice Terminal Hardware and Software	As a general matter, this Guideline implies that any ICT product capable of placing a call must be able to support a mode of RTT communication. This is not technically feasible for all ICT products that can make a voice call. For example, a watch that is capable of supporting phone calls has no keyboard or input method for supporting RTT. As such, this section must be adapted to technical realities and revised in scope. TIA/CTIA thus recommend that the scope of this Guideline be modified as follows: "Terminal hardware or software that is capable of providing voice communication in real-time, and that can support the application RTT format for the platform and its given requirements, shall support the applicable RTT format for the platform and its given requirements, and shall conform to 902.6.1 or 902.6.2."
902.6.1 – RTT over IP	TIA/CTIA recommend that this Guideline be modified to read as follows: "Terminals that provide voice conversation over Internet Protocol (IP) through applications or services, supported by the platform, shall conform to 902.6.1.1 and 902.6.1.2."
902.6.1.1 – RTT Capability	This Guideline in its current form applies the requirements to all terminals with RTT send or receive capability. TIA/CTIA recommend that this Guideline be modified and refined to read

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	as follows: Terminals that can support the applicable format for the platform as specified in the applicable RTT format for the platform, shall conform to 902.6.1.1.1 and 902.6.1.1.2." The following Advisory Note should be added as well: "Examples of non-proprietary, standard RTT formats include 3GPP TS 26.114 for cellular wireless telecommunications using IP Multimedia Subsystems (IMS) and ITU-T F.703 for Multimedia Conversation Systems for Non-Telephone Telecommunication Services."
902.6.1.1.1 – Display of RTT	As written, any phone would have to support RTT and any format of RTT. This is overly broad and includes terminals such watch phones, analog or digital cordless phones and video conferencing devices where the consumer usability case is questionable and where the cost could be extreme. TIA/CTIA thus recommend that this Guideline read as follows: "Terminals having a user interface with a multi-line display, or a user interface that runs on devices that have a multi-line display, shall display RTT communications that are received in the RTT format supported on the platform as defined by the applicable RTT format for the platform.
902.6.1.1.2 – Text Generation	TIA/CTIA recommend that this Guideline read as follows: "Terminals that support a mode of RTT communication shall allow users to send RTT communications in the RTT format supported on the platform." The following Advisory Note should be added as well: "Examples of non-proprietary, standard RTT formats include 3GPP TS 26.114 for cellular wireless telecommunications using IP Multimedia Subsystems (IMS) and ITU-T F.703 for Multimedia Conversation Systems for Non-Telephone Telecommunication Services."
902.6.1.2 – Connection of Alternate Device	This section should be removed. The Board's intent is unclear, although it appears to apply to a jack that enables a TTY device to plug into an RTT device. An external device similar to a TTY that can provide text input/output would need to be developed, but there is no such external RTT device in the market.
902.6.2 – TTY Compatibility	In light of the overarching policy objective of migrating TTY users off of those devices, this section should be removed. The Guidelines call for TTY without use of audio tones, yet audio tones are precisely how TTYs operate. Such requirements for TTY backward compatibility do not exist in any current TTY standards. (Further, terminals that cannot send or receive are not covered ICT in the first place.) This Guideline would require dual mode devices to meet the requirement in both modes. If a goal of developing RTT is to migrate from TTY, this makes no sense. If the Board feels compelled to retain this requirement, substantial changes are warranted
902.6.2.1 – TTY connection (RJ-11 Jack)	Some devices in marketplace today send Baudot tones from keyboard press and support HCO

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	and VCO. This Guideline would require *all* handset devices to do this, requiring substantial development work to fundamentally change how TTY functions, even as further development work is needed for RTT. The Guideline also discourages innovative solutions and should not require a specific hardware interface (RJ-11) where acceptable alternatives exist. TIA/CTIA recommend removing the RJ11 reference so the text reads simply as follows: "Terminals shall support the connection of an external TTY device or terminal adaptor via standard, non-proprietary interface." Further, the following Advisory Notes should be added: (1) "Examples of standard, non-proprietary audio jacks that meet this requirement include those that follow the Japanese Industry Standard (JIS) Audio Jack C 660, which is used internationally." and (2) "There is in the marketplace today IT TTY software that does not require jacks. Another option is an analog terminal adaptor (ATA) which connects to a terminal via RJ11 jack on the terminal."
902.6.2.2 – Simultaneous or Combination of Speech and Text	TIA/CTIA submit that if the goal of developing RTT is to migrate from TTY, this requirement to amend TTY makes no sense. TIA/CTIA thus recommend this Guideline be deleted.
902.6.2.2.1-902.6.2.2.2 – Simultaneous Speech and Text and Microphone Control	These requirements are not found in existing standards for TTY, e.g., TIA 825-A, and should be removed.
903 – Voice Mail, Messaging, Auto-Attendant, Conferencing, and IVR (903.1 General)	This Guideline generally requires compatibility between these technologies and RTT. TIA/CTIA note that if an IVR requires use of tone to select, it is not possible to meet 902.3.5 and 903.1 simultaneously. The Board should evaluate and try to reconcile these conflicting requirements. Moreover, incorporating conferencing into this section is problematic. Conferencing functions on a real-time basis so the options of pause, skip, rewind, slow down, and repeat at 903.3 are inapplicable
903.2 – Comparable Functionality.	TIA/CTIA recommend that this Guideline be simplified to read as follows: "ICT products covered by 903.1, shall conform to 903.3 and 903.4." Moreover, the Advisory Note does not afford manufacturers clarification as to how to meet this Guideline and should be removed. (At minimum, the second sentence beginning "Historically, …" should be removed.) The Advisory Note's reference to "best practices" is premature, as there is not sufficient experience with RTT for any such best practices to exist yet, and should be removed in its entirety. Additionally, the Note's assertion that "Calls made through [TRS] are not direct and do not satisfy this requirement" is unnecessary.
903.3 – Message and Prompt Navigation	The Board should consider limiting the scope of this function to review of messages within

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	voice mail and messaging applications. Pause, skip, rewind, slow down, and repeat are common playback controls for voice messaging applications. For IVR/auto attendant functions, in which commands would need to be assigned to numeric keys, the multiple levels of prompts necessary to accommodate RTT would render the system unusable – contrary to the Board's objective. Moreover, pause, slow down, and rewind and repeat speech output all provide the same function for the user, that is, each gives the user more time to navigate the equipment. For reasons discussed above (903.1) conferencing should be excluded as well. The Advisory Note cites to the Digital Talking Book ANSI/NISO Z39.86-2002 standard as an applicable reference. This is not an applicable IVR standard, however, and while illustrative, it cannot be applied to message and prompt navigation on IVRs. TIA/CTIA thus recommend that the Board remove this sentence.
903.4 – Audio Encoder Intelligibility	This Guideline references the G.722 ITU standard. First, G722 is dated (1988) and not sufficient to meet the Guideline. Further, this is not an applicable standard to reference, but an XML "hyperlink" means of navigation not relevant to application ICT. Moreover, G.722 is not used on the PSTN; thus, when it is used for RTT, it must be transcoded which creates opportunities for degradation, to the detriment of users. This Guideline should be simplified to read as follows: "ICT covered by this section shall use, directly or indirectly, an audio encoder that complies with the applicable non-proprietary standard for encoding and storing audio information." The Advisory Note's assertion that G.722 "offers a significant improvement" should be removed; it is commentary without substantiation and may not be true in all instances. The remainder of the Note should be reworded as follows: "An example of an applicable non-proprietary standard is G722, which is an …."
903.5 – No Background Sounds	TIA/CTIA understand this Guideline to require no background sound generated by the system itself, such as music while a voice is speaking in IVR. There are no accredited national or international standard, however, to govern or measure background noise. TIA/CTIA recommend that this Guideline be modified to read "ICT covered by this section shall provide prompts that do not include disruptive background sounds."
904 – Information About Call Status and Functions (904.2 – Call Status and Product Functions)	For clarity purposes, this Guideline should be modified to read "Information provided about call status and related product functions shall conform to Chapter 5 and 704." Also, the Advisory Note's reference to "set-up" as a relevant product function requires clarification;

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	does this term apply to use of complete product or just within the functionality of a call?
905 – Video Communication Support (*905.1 – General)*	As a general matter, there are existing standards for Video Communication through standards from 3GPP and ITU, which are followed by covered ICT. The Board should harmonize its Guidelines with such standards. Moreover, the Guideline's requirement for "interoperability that permits video communication between and among users [etc.]" is a commercial necessity, not an accessibility feature. Interoperability with different manufacturers and service providers is a business requirement not related to accessibility. The Board should consider whether this requirement is necessary in the first instance. Finally, "video communication" is not defined within this document; video communications are a telecommunications service covered by Section 255. The Board should clarify the scope of this requirement accordingly.
905.3 – Video Communication Quality	This Guideline generally would demand a very high bandwidth environment and, indeed, could exceed the FCC's definition of Broadband, resulting in substantial cost. The Board needs to conduct some basic investigation of video quality requirements for sign language before imposing a specific Guideline here, and consider feasibility and cost as well. Moreover, there will be differences between wired and wireless configuration and network capabilities for video communication quality that must be accounted for. Finally, the first paragraph of the Advisory Note presumes video conversation system specifications without the benefit of harmonization with existing standards.
905.3.1.1 – Video Communication Data Processing (Speed).	This Guideline needs to account for different standards and technology platforms. In that regard, TIA/CTIA recommend that this be modified to read as follows: "ICT covered by 905.1 shall support the frames per second (FPS) speed as qualified by the applicable video communication specification for the given network." The following Advisory Note should be added as well: "An example of an applicable Video Calling specification for a given network is the 3GPP TS 26.110 standard for GSM based cellular wireless networks."
905.3.1.2 – Data Processing/Data Stream.	TIA/CTIA recommend removing this Guideline as it amounts to technology micromanagement. Further, the Advisory Note should be modified to account for more flexibility: "An example of an application specification for a given network is the 3GPP TS 27.001 standard for Bearer Service BS30 for GSM based cellular wireless networks." Further the Advisory Note's reference to data connections at a rate less than 256 kbps should be

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	removed.
905.3.1.3 – Latency.	The source of the 400 milliseconds threshold is not disclosed. Testability for any requirement other than an applicable specification for the given network, in conjunction with the appropriate test procedures and testing equipment, would be very difficult to determine. Consistent with the above changes, TIA/CTIA recommend that the Board modify the Guideline so as to read: "ICT covered by 905.1 shall support a latency that complies with the applicable specification for the given network."
905.3.2.1 – Display Quality (Resolution).	The pixilation/resolution standard is beyond the capability of most wireless phones. As such, TIA/CTIA recommend referencing Quarter Common Intermediate Format ("QCIF") to be within the realm of possibility. TIA/CTIA recommend that the Board modify the Guideline as follows: "ICT covered by 905.1 shall support a display with a minimum resolution equal to Quarter Common Intermediate Format (QCIF) resolution (176 x 174 pixels) (incorporated by reference, see ….)"
905.3.2.2 – Display Quality (Connectors).	Consistent with the above, the TIA/CTIA recommend that the Board modify the Guideline so as to read: "ICT covered by 905.3.2.2 shall support one or more non-proprietary standard interfaces, conformant with 703, that support connectivity with a device with a resolution of 640 x 480 pixels.
905.3.2.3.2 – Alternate Display Connectors.	This Guideline should be removed. It is not relevant to the covered ICT vendor, but rather, for the alternative Display Screen vendor not covered by this section.
905.3.2.3.3 – Common Technologies	Same as above – should be removed.
905.4 – Non-auditory Alerting System	TIA/CTIA recommend that this Guideline be modified to allow for alternative compliance methods, as follows: "ICT shall provide a non-auditory alerting system for incoming video communications, directly or through the use of external non-auditory alerting systems, that conforms to either 905.4.1 or 905.4.2."
905.4.1 – "Built-in" System	Consistent with the above, this requirement should either be removed or explicitly modified to read as follows: "ICT shall provide users with an optional mode of non-auditory alerting."
905.4.2 – External Compatibility	To afford vendors additional flexibility, TIA/CTIA recommend the Guideline be modified to read as follows: "ICT shall support a non-proprietary, standard interface to connect with an external non-auditory alerting system." In that regard, an Advisory Note should be added as follows: "Examples of non-proprietary standard interfaces or protocols for connectivity include, but are not limited to, IEEE 1394, USB, Bluetooth, and wireless USB adaptors."
905.5 – Visual Indicator of Camera Status	TIA/CTIA is concerned that this Guideline would limit the usefulness of a product for all users, including those who cannot see. The Guideline should allow for multimodal indications, as

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	follows: remove "visual" from the title, and modify the text to read "ICT shall provide an indication of whether the camera is on or off," and add an explicit exception, as follows: "EXCEPTION – ICT covered by this section that provide security solutions that enable IT Administrators to depopulate camera applications on all connected ICT terminals in a given environment are exempt from this requirement."
905.6.1 User Controls Location	This Guideline is prescriptive of the User Interface in such a way as to discourage innovation and product differentiation. Further, it requires specific software or hardware controls that are not appropriate in many contexts. TIA/CTIA recommend that this Guideline be removed.
906 – Audio Clarity for Interconnected VoIP – *§ 906.2 – ITU Standard G.722*	As noted earlier, G.722 is a dated standard. This Guideline should be re-couched in terms of a standard's functionality, as follows: "Encoding and Decoding. ICT shall transmit and receive speech that is digitally encoded in an applicable, non-proprietary standard for encoding and decoding speech." If adopted, this would render the Exception for closed systems unnecessary. TIA/CTIA also recommend adding an Advisory Note to reflect this change: "Encoding & Decoding. An example of a non-proprietary standard for speech encoding and decoding includes ITU G.722 for fixed network VoIP products."
907.2 – Alternate Alerting System	This Guideline needs to be modified to allow alternative compliance methods. TIA/CTIA recommend the Guideline be modified as follows: "For incoming communications, ICT shall provide an alternate alerting system, directly or through the use of external alerting systems, conforming to either 907.2.1 or 907.2.2."
907.2.1 – Built-in system.	Consistent with the above change, rather than a mandated built-in system the Guideline should be modified as follows: "ICT shall provide users with an optional mode of alternate alerting system." The Advisory Note's categorical dismissal of LEDs as a valid method does not reflect research in this area; the Note should thus be modified to read: "Small built-in light emitting diodes (LEDs) may not be sufficient to alert people with hearing disabilities to incoming calls if the person is not looking directly at the device. Large visual alerts combined with loud audible alerts can be most effective."
907.2.2 – External Compatibility.	Consistent with the above, this Guideline should allow for more flexibility, as follows: "ICT shall support a non-proprietary, standard interface to connect with an external non-auditory alerting system." Finally, the Advisory Note's dismissal of a microphone placed near a sound source as a valid compliance method is not helpful to vendors and is unnecessary.