

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

In the Matter of

Accessibility of User Interfaces, and Video
Programming Guides and Menus

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MB Docket No. 12-108

COMMENTS



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TABLE OF CONTENTS

I.	INTRODUCTION AND SUMMARY	1
II.	OVERVIEW OF ACCESSIBLE USER INTERFACE REQUIREMENTS AND MARKETPLACE DEVELOPMENTS	5
A.	Scope and Extent of Accessible User Interface Requirements.	5
B.	Anticipated Marketplace Developments.	9
C.	Larger MVPDs Have Invested Significant Sums to Offer Advanced Video Services Including Talking Guides.	12
III.	FULLY COMPLIANT SOLUTIONS ARE AVAILABLE FOR MANY SMALL OPERATORS TO PROVIDE ACCESSIBLE GUIDES UPON REQUEST AND PARTIAL SOLUTIONS ARE AVAILABLE FOR OTHERS	15
A.	Many Mid-Sized and a Few Small Operators Have Invested In an Advanced User Interface That Should Permit Them to Meet the Commission’s Talking Guide Requirements by the 2018 Deadline.....	16
B.	Other Solutions Are Currently or Are Expected to Be Shortly on the Market That Will Allow the Many Small Cable Operators That Cannot Afford to Deploy the TiVo Wholesale Platform to Meet their Talking Guide Obligations.....	18
C.	For Technical Reasons, Solutions that Are Currently or Are Expected to Be Shortly on the Market, Will Provide Only Partial Solutions for Some Small Cable Operators and For Others There Will Be No Commercially Available Solution.	20
1.	Systems Offering QAM-Delivered Video on Demand Have Only Partial Solutions For Technical Reasons.....	20
2.	Some Systems Are Unlikely to Have Any Solutions Available By the Deadline For Technical Reasons.....	20
IV.	MID-SIZED AND SMALL MVPDS PROVIDING VIDEO SERVICE VIA IPTV WILL NEED THEIR VENDORS TO PROVIDE THEM SOLUTIONS AS WELL	21
V.	CONCLUSION	22

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I. INTRODUCTION AND SUMMARY

The American Cable Association (“ACA”) submits these comments in response to the Media Bureau’s Public Notice initiating its review of the marketplace and seeking comment on whether the December 20, 2018 compliance deadline for accessible user interfaces for mid-sized and smaller multichannel video programming distributors (“MVPDs”) that lease or sell navigation devices to view their video programming should be retained or extended, in whole or in part (“Notice”).¹ The Twenty-First Century Communications and Video Accessibility Act of 2010 (“CVAA”) imposed requirements relating to “digital apparatus” and “navigation devices” in

¹ See *Media Bureau Seeks Comment on December 20, 2018 Accessible User Interfaces Deadline for Mid- Sized and Smaller MVPDs*, Public Notice, MB Docket No. 12-108 (rel. Sept. 28, 2017) (“Public Notice”).

Sections 204 and 205, respectively, that are aimed at ensuring that individuals that are blind or visually impaired may audibly access built-in functions controlled via on-screen text menus and guides for the display or selection of multichannel video programming.² CVAA Section 205(b)(4)(A) permits a covered entity to comply through the use of software, a peripheral device, specialized consumer premises equipment, a network-based service, or other solution.³ The CVAA directed the Commission to adopt implementing regulations for both apparatus manufacturers and MVPDs and provided it with flexibility both to exempt from the regulations cable systems serving 20,000 or fewer subscribers and to phase-in MVPD compliance deadlines by setting forth only minimum compliance deadlines (i.e., “not less than” two/three years).⁴

At the time it adopted the accessible user interfaces requirements, the Commission recognized that smaller MVPDs “generally lack the market power and resources to drive independently the development of MVPD headend or customer premises equipment” and typically rely on the research and development efforts of larger operators with respect to deploying new equipment and services to consumers.⁵ The Commission accordingly: (i) used

² *Twenty-First Century Communications and Video Accessibility Act*, Pub. L. 111–260, Oct. 8, 2010, 124 Stat. 2775, §§ 204, 205 (“CVAA”). Section 204 directs the Commission to require that digital apparatus, including those using Internet Protocol, designed to receive or play back video programming simultaneously with sound, be designed, developed and fabricated with user interfaces that are accessible to and usable by individuals who are blind or visually impaired. CVAA, § 204; 47 U.S.C. § 303(aa). Section 205 directs the Commission to require that navigation devices provide two forms of accessibility: (i) if achievable, audible accessibility of text menus and program guides (talking guides) that are provided by the navigation device for the display or selection of multichannel video programming and (ii) “a mechanism reasonably comparable to a button, key or icon designated for activating the closed captioning or, accessibility features” for access to built-in closed captioning features. CVAA, § 205(a); 47 U.S.C. § 303(bb)(1)-(2).

³ CVAA, § 205(b)(4)(A); 47 U.S.C. § 303(bb)(1).

⁴ CVAA, § 205(b)(2) & (6); 47 U.S.C. § 303(bb).

⁵ Public Notice at 2; *Accessibility of User Interfaces, and Video Programming Guides and Menus; Accessible Emergency Information, and Apparatus Requirements for Emergency Information and Video Description: Implementation of the Twenty-First Century Communications and Video Accessibility Act of 2010*, Report and Order and Further Notice of Proposed Rulemaking, 28 FCC Rcd 17330, ¶ 114 (2013) (“Accessible User Interfaces Order”).

its statutory discretion to set a three-year compliance deadline for larger MVPDs and a five-year compliance for certain smaller MVPDs; (ii) committed to reviewing the marketplace following the three-year compliance deadline for larger MVPDs; and (iii) delegated authority to the Media Bureau to initiate this review.⁶ The compliance obligation for larger MVPDs took effect on December, 20, 2016, and the compliance deadline for small and mid-sized MVPDs is set for December 20, 2018.

Through this Notice, the Media Bureau seeks information (i) regarding the accessibility requirements that have been designed and developed by larger MVPDs to meet the December 2016 compliance deadline and (ii) as to whether mid-sized and smaller MVPDs have begun the process of identifying and implementing workable accessibility solutions that are compliant with the Commission's rules in anticipation of the December 2018 compliance deadline and the types of solutions they expect to implement.⁷

ACA welcomes this opportunity to share with the Media Bureau the results of its research on the state of the accessible guide marketplace for MVPDs already required to comply with the accessibility requirement and for those who are required to comply next year and what the marketplace is likely to look like for small and mid-sized operators by the December 20, 2018 deadline.⁸ The Commission's decision in 2013 to have the Media Bureau initiate this proceeding one year prior to the 2018 deadline was wise given the widespread

⁶ The Commission has defined "small" for this purpose as MVPDs with 400,000 or fewer subscribers as of year-end 2012, and MVPD systems with 20,000 or fewer subscribers that are not affiliated with an operator serving more than 10 percent of all MVPDs subscribers as of year-end 2012. 47 C.F.R. §§ 79.108(b)(1)-(2), 79.109(c)(1)-(2).

⁷ Public Notice at 2.

⁸ In preparation for responding to the Public Notice, ACA has done extensive research on available accessible technologies, interviewed its member companies (both those subject to the initial compliance deadline and those subject to the delayed compliance deadline), the National Cable Television Cooperative ("NCTC") (the buying group through whom most of its members purchase cable programming and equipment), guide makers, navigation device manufacturers and others. ACA will continue these efforts through the course of this inquiry and any subsequent Commission action on the delayed compliance deadline.

uncertainty at the time about how large operators would provide blind and visually impaired subscribers with audibly accessible on-screen text menus and guides (“talking guides”) and whether these solutions would be viable for smaller providers.

As discussed below, ACA has found through its extensive research that the market for talking guides did not develop in the manner the Commission anticipated in its 2013 User Interfaces Order and that rather than coalescing around uniform solutions that could be widely adopted by all covered MVPDs, most large operators spent significant sums to develop talking guides that are highly customized to their own systems and networks. Nonetheless, there are full and partial accessibility solutions available to most subscribers of small and mid-sized operators, though there are some subscribers of some providers for whom a solution will not be available.

Specifically, ACA has found that many small and mid-sized operators will likely be well positioned to meet their obligations by the December 20, 2018 deadline, and that others will be able to meet at least some of those obligations. As discussed in more detail below, talking guide solutions available to small and mid-sized operators below include:

- The advanced user interface developed by TiVo for use on a wholesale basis, which will enable many mid-sized and a few small MVPDs who have been able to afford the significant network upgrades and cost involved to provide talking guides to their blind and visually impaired subscribers upon request.
- “Plug-in” devices that are audibly accessible but are not solutions fully integrated with an operator’s headend system.
 - These solutions include an advanced CableCARD device currently available at retail – the TiVo Bolt – and a simpler DTA that is currently under development that will be made available to operators at wholesale.

Unfortunately, “plug-in” devices represent only partial solutions for some operators, as they are not compatible with QAM-delivered video-on-demand (“VOD”) services, and there are

two small (and likely overlapping) subsets of cable systems with which these devices are not compatible at all: systems that offer some channels in their lineup in only an analog format and systems not offering broadband Internet access service.

Nonetheless, ACA's research indicates that between the MVPDs with more than 400,000 subscribers currently subject to the talking guide requirements and the mid-sized and small cable operators serving nearly 2 million that have deployed the TiVo wholesale platform on some or all of their systems and have plans to do in the near future, it is likely that as many as 97 percent of all domestic MVPD subscribers will have access to three or more MVPDs in their local market that can provide a talking guide that is fully compliant the Commission's requirements. Taking into account that many small cable operators will be able to comply with the Commission's rules with "plug-in" devices, the numbers will be even greater.

These comments are organized as follows: Section II reviews the Commission's accessible user interface requirements and its assumptions about how the post-adoption marketplace for audibly accessible on-screen text menus and guides would develop. Section III describes, to the best of our understanding, the results of ACA's market research and the availability of achievable solutions for the covered small and mid-sized MVPDs subject to the delayed compliance deadline.

II. OVERVIEW OF ACCESSIBLE USER INTERFACE REQUIREMENTS AND MARKETPLACE DEVELOPMENTS

A. Scope and Extent of Accessible User Interface Requirements.

In its October 2013 Accessible User Interfaces Order, the Commission adopted rules pursuant to CVAA Sections 204 and 205 requiring apparatus manufacturers and MVPDs to make user interfaces and video programming guides and menus audibly accessible on televisions, set-top boxes, and other devices used to view video programming. With respect to set-top boxes and other types of navigation devices, the accessible user interfaces rules require that on-screen text menus and guides provided by such devices for the display or selection of

multichannel video programming must be audibly accessible in real time; covered MVPDs must make such accessible devices available upon request by individuals who are blind or visually impaired,⁹ if achievable.¹⁰ In addition, navigation devices with built-in closed captioning capability must include a mechanism that is reasonably comparable to a button, key, or icon for activating the closed captioning.¹¹ MVPDs that lease or sell navigation devices, as well as navigation device manufacturers, are responsible for compliance with these rules.¹² An MVPD that complies with its Section 205 obligations through use of separate equipment or software is responsible for providing such equipment or software to the requesting individual who is blind or visually impaired at no additional charge.¹³

The Commission has defined “navigation devices” subject to Section 205 requirements as those devices employing a CableCARD slot or other conditional access mechanism. The definition includes both devices that are leased by MVPDs and those made available at retail (e.g., TiVo set-top boxes).¹⁴ That is, only those devices that support conditional access to

⁹ 47 C.F.R. § 79.108(a)(1)-(3). The rules also specify how covered entities should make accessible navigation devices available to requesting blind or visually impaired consumers, and how such entities can comply through the use of separate equipment or software. See *id.*, § 79.108(a)(5)-(7).

¹⁰ If a covered entity believes that it is not achievable for them to comply with the accessible user interfaces rules, they may either (i) seek a determination from the Commission that compliance with the rules is not achievable before manufacturing or importing the device; or (ii) raise as a defense to a complaint or Commission enforcement action that a particular device does not comply with the rules because compliance was not achievable. 47 C.F.R. § 79.108(c)(1); Accessible User Interfaces Order, ¶ 78. “Achievable” means “with reasonable effort or expense,” and the Commission will consider four specific factors when determining whether compliance with the requirements of the rules is not achievable. 47 C.F.R. § 79.108(c)(2).

¹¹ 47 C.F.R. § 79.109(b).

¹² Compliance is required, where achievable, for all navigation devices and digital apparatus manufactured after the date that is three years from publication of the Order in the Federal Register, or five years from publication for certain mid-sized and smaller MVPDs (not among the top 14 operators) and systems (fewer than 20,000 subscribers and not affiliated with an MVPD serving more than 10.1 million subscribers). Accessible User Interfaces Order, ¶¶ 111-17.

¹³ *Id.*, ¶¶ 96, 99-103. Equipment provided under this separate solution alternative to achieve accessibility must make all of the functions required under the Commission’s rules accessible or enable accessibility as required by the statute and rules, if achievable. *Id.*, ¶ 97.

¹⁴ *Id.*, ¶ 12 (“We conclude, consistent with the text of Sections 204 and 205, and the definition of ‘navigation devices’ set out in Section 76.1200 of our rules, that ‘devices such as converter boxes,

control consumers' access to encrypted programming and services are subject to Section 205 talking guide requirements.¹⁵ The Commission consequently refrained from subjecting devices to Section 205 talking guide requirements that are used by subscribers on analog-only cable systems – likely very small systems – and do not employ encryption.¹⁶ In addition, at ACA's request, the Commission clarified that Section 205 does not apply to a cable channel providing program listings (often in the form of a scrolling grid) because the information provided on such a programming channel is provided entirely by equipment in the cable headend rather than by any navigation device on the customer's premises that has been provided by the cable operator.¹⁷ Similarly, the Commission clarified, as ACA requested, that MVPDs that do not provide navigation devices to their subscribers are not directly subject to the requirements of Section 205.¹⁸

interactive communications equipment, and other equipment used by consumers to access multichannel video programming and other services offered over multichannel video programming systems' are subject to the requirements of Section 205 . . . [W]e interpret the term 'navigation devices' to encompass devices that have built-in capability to use a conditional access mechanism in order to access MVPD video programming and other services"). See also *id.*, ¶ 21 ("Thus, we interpret the term 'navigation devices' as encompassing only devices that support conditional access to control consumer access to programming and services. Based on our interpretation, we find that navigation devices subject to Section 205 are those devices manufactured with a CableCARD slot, CableCARD's successor technology, or other conditional access capabilities.").

¹⁵ *Id.*, ¶ 23.

¹⁶ *Id.*, ¶ 23, n.69. In a related CVAA rulemaking concerning the provision of audibly accessible emergency information (passed through a secondary audio stream), ACA provided data and information showing the small size of many of the analog-only systems then in operation. "ACA members, who comprise more than 800 small and medium-sized multichannel video programming distributors, operate 987 all-analog systems in total that cumulatively serve a total of 203,000 subscribers. The average all-analog system serves only 206 subscribers, while the majority of all-analog systems serve even fewer subscribers. . . As the chart shows, over eighty percent of the all-analog systems operated by ACA members serve 250 or fewer subscribers, and the average number of subscribers served by each of these systems is 80. Moreover, ninety-seven percent of the all-analog systems operated by ACA members serve fewer than 1,000 subscribers. The 964 systems with less than 1,000 subscribers cumulatively serve a total of 141,000 subscribers." See Letter from Barbara Esbin, Counsel to the American Cable Association, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 12-107 (filed Mar. 7, 2013). The number of such systems has likely decreased over the past four years due to upgrades to digital transmission or cessation of business.

¹⁷ Accessible User Interfaces Order, ¶ 44, n.156.

¹⁸ *Id.*

Covered entities are required to make nine functions audibly accessible on navigation devices because the Commission has determined that they are functions accessed through on-screen text menus and guides and used for the display or selection of multichannel video programming.¹⁹ If any of these nine functions are not offered on a navigation device, they do not need to be added; rather, the rules only require that functionality already included in the device be made accessible.²⁰ The requirement is for consumers to receive the essential information from on-screen text menus and guides in audible format; covered entities are not required to provide an exact replication of the text.²¹ As a result of the way the Commission has defined “Channel/Program Section,”²² “Display Channel/Program Information”²³ and “Playback Functions,”²⁴ ACA understands the rules to require MVPDs providing VOD and DVR services through on-screen texts or guides on an operator’s navigation device to make these features audibly accessible by the relevant compliance deadline, either through a built-in solution or a separate solution.

¹⁹ *Id.*, ¶¶ 58, 64-68. The nine functions are a subset of the list of 11 essential functions previously identified by the Video Programming Accessibility Advisory Committee (“VPAAC”) and include: Channel/Program Selection; Display Channel/Program Information; Configuration – Setup; Configuration – CC Control; Configuration – CC Options; Configuration – Video Description Control; Display Configuration Info; Playback Functions; and Input Selection. *Id.*, ¶ 68.

²⁰ *Id.*, ¶ 66. Additionally, if a function is offered through some other means – such as via a dedicated play, rewind or pause feature on a remote control, as opposed to via an on-screen text menu or guide – that function is not covered by the rules. *Id.*, ¶ 68, n.261. The remaining two VPAAC essential functions, “Power On/Off” and “Volume Adjust and Mute,” must also be accessible to the extent they are accessed through the guide or menu, but these two functions need not be audible. *Id.*, ¶ 67, n.260.

²¹ *Id.*, ¶ 71.

²² *Id.*, ¶ 58, n.222 (including the ability to select programs available on demand, on a digital video recorder (“DVR”), on linear programming in real-time, and to launch applications used for selection and display of programming).

²³ *Id.*, ¶ 58, n.223 (including the ability to display channel and program information for programs available on demand, on a DVR, or on linear programming in real-time).

²⁴ *Id.*, ¶ 58, n.225 (including the ability to control playback functions for programs available on demand or on a DVR, as well as linear programming in real-time).

B. Anticipated Marketplace Developments.

In its previous filings in this docket, ACA has explained that small and mid-sized MVPDs do not custom design hardware and software solutions for their systems, and must depend on the availability of commercial “off-the-shelf” equipment to satisfy the Commission’s technical mandates.²⁵ Further, ACA has noted how the development of mass-market commercial technology and equipment necessary to render program and menus audibly accessible “will undoubtedly be an exceedingly complex undertaking,” that there was “substantial uncertainty about how accessibility requirements will be implemented, what technologies and equipment will be available for operators to meet them, and when they will be made commercially available,” as well as whether any achievable solutions would materialize across the range of technologies employed by the vast majority of small and mid-sized MVPDs.²⁶

²⁵ See *Accessibility of User Interfaces, and Video Programming Guides and Menus; Accessible Emergency Information, and Apparatus Requirements for Emergency Information and Video Description: Implementation of the Twenty-First Century Communications and Video Accessibility Act of 2010*, MB Docket No. 12-108, Comments of the American Cable Association at 10-11 & n.4 (filed Jul. 15, 2013) (“ACA 2013 Comments”); Letter from Barbara Esbin, Counsel to the American Cable Association to Marlene H. Dortch, Secretary, FCC, MB Docket No. 12-108 at 1-2 (filed Jul. 29, 2013) (“First, smaller cable operators typically must wait at least a couple of years *after* the large operators first deploy new technology before it becomes feasible (i.e., available and affordable) for them to implement it on their systems. The needs of large operators drive hardware manufacturers’ development efforts and these operators, who have research and development budgets and scale, are the first to gain access to new technology. Given their limited size and resources, smaller operators have no direct influence on the development of new technologies and must wait for commercial mass market solutions from their vendors. Generally, the clock only starts for smaller operators to gain access to new technologies after larger operators have already started deploying it. It can take several years for technology that is developed for large operators to be modified and made available for smaller operators. Second, even after new hardware and/or software becomes available from vendors at an affordable price, smaller cable operators will not be able to fulfill an accessible STB mandate simply by providing a customer with an off-the-shelf third-party accessible device. Smaller operators will need time to ensure compatibility of these accessible devices with their cable system’s existing variety of hardware, firmware, and software.”).

²⁶ ACA 2013 Comments at 6-7. Among the factors identified by ACA that must be taken into account in designing an accessibility solution, which will determine how and when audibly accessible guides or other solutions arrive in the marketplace include: (i) the variety of wireline MVPD platforms in the field – all-analog, hybrid analog-digital, all-digital, switched digital video and Internet Protocol (“IP”) – which is relevant to ensuring that accessible guides can be used for the platform in question and will dictate which of the service platforms vendors will target first, or at all, for development; (ii) the age of the equipment used in the system and the need to upgrade the equipment; (iii) the software version utilized in existing headend equipment and whether it is compatible with the accessibility solution; (iv) ease of upgrading user guide software and whether it will also require corresponding upgrades to other components of the video distribution ecosystem – network infrastructure, headend equipment, guide firmware and software,

The Commission took ACA's comments to heart and in setting compliance deadlines, relied on its experience and past practices regarding technical mandates involving design and manufacture of equipment.²⁷ At the time it adopted its accessible user interfaces rules, the Commission agreed with MVPD commenters that it should use its discretion to afford mid-sized and smaller MVPD operators and small MVPD systems more time to comply with Section 205.²⁸

We agree with MVPD commenters that a longer phase-in is appropriate for certain mid-sized and smaller MVPD operators and small MVPD systems. We recognize that smaller operators generally lack the market power and resources to drive independently the development of MVPD headend or customer premises equipment. NCTA explains that smaller operators "typically rely on the research and development efforts of the larger operators prior to deploying new equipment and services to their customers." Thus, it is the large cable operators that generally dictate equipment features to manufacturers and commonly get priority in the delivery of that equipment. We also agree with NCTA that "small systems have a smaller customer base across which to spread costs." We recognize that delayed compliance may mean fewer accessibility choices for subscribers to smaller systems with disabilities in the near term, particularly in rural areas. However, we agree with NCTA that this concern will be mitigated by the presence of other accessibility options available in the marketplace when the rules take effect. As NCTA notes, most consumers should have access to satellite service, and subscribers to cable systems that are eligible for delayed compliance will be able to obtain navigation devices at retail that will be subject to the Section 205 audible accessibility requirement.²⁹

In mandating phased-in compliance based on operator and system size, the Commission believed that despite the complexities of developing and deploying accessible user guides and menus, three years would provide adequate time for larger MVPDs to come into

video-on-demand platforms, set-top boxes and other devices with their own firmware and software and service agreements between vendors and distributors – initially and as any one component is subsequently upgraded; (v) variation not only among the components of the distribution ecosystem but between cable systems operated by a single provider, each requiring a unique upgrade approach; and (vi) the fact that accessibility solutions will be developed for the larger operators first and will benefit smaller operators only if these solutions are compatible with smaller or older systems. *Id.*, 7-8.

²⁷ Accessible User Interfaces Order, ¶¶ 111-17.

²⁸ *Id.*, ¶ 115.

²⁹ *Id.*

compliance and that the solutions developed by vendors for them would become commercially available for use by smaller MVPDs and operators of small cable systems.

The Commission rejected calls for a more open-ended extension of the compliance deadline or more permanent relief from the accessibility requirements on the grounds that the record indicated “no reason to assume that smaller operators or smaller systems will never achieve compliance,”³⁰ and therefore declined, on the record before it, to adopt a permanent exemption for small cable systems with 20,000 or fewer subscribers as permitted by Section 205(b)(2). It did, however, provide small and mid-sized operators two additional years to comply, noting that “the uncertainty surrounding how covered small entities will comply makes it reasonable to afford a late compliance deadline,” while at the same time making “it premature to assume that small cable systems will never be able to comply with the requirements of Section 205.”³¹ Nonetheless, the Commission was cognizant enough of that uncertainty to commit to undertaking this review of the marketplace to consider whether the 2018 deadline should be retained or extended (in whole or in part).³²

Clearly, the Commission expected the market for accessible navigation devices to develop in much the same manner as had previous cable technical deployments: larger MVPDs would coalesce around a handful of solutions, fund the research and development, and help drive down unit costs through high volume purchases, as had been the case for advances such as the DOCSIS specification and cable modems and for navigation device related developments such as CableCARD.³³ At the same time, the Commission wisely determined

³⁰ *Id.*, ¶ 116.

³¹ *Id.*, ¶ 119.

³² *Id.*, ¶ 116.

³³ The Commission has found that smaller MVPDs should be given more time to come into compliance with technology mandates in recognition of the fact that they must await the development and deployment of new technologies by larger MVPDs to eventually be made commercially available for their use. See, e.g., *TiVo Inc.’s Request for Clarification and Waiver of the Audiovisual Output Requirement of Section 76.640(b)(4)(iii)*, *et al.*, Memorandum Opinion and Order, 27 FCC Rcd 14875 ¶ 17 (2012) (“TiVo Waiver

that it should examine the state of the marketplace prior to the compliance deadline established for small and mid-sized operators, to determine whether its assumptions would prove correct. As discussed below, ACA's research has revealed that this assumption, however well-grounded in prior experiences, has not proven true for the market for accessible devices.

C. Larger MVPDs Have Invested Significant Sums to Offer Advanced Video Services Including Talking Guides.

To prepare its response to the Commission's inquiry, ACA conducted substantial research, interviewing both operators that have already come into compliance with the rules and operators that are currently preparing to comply with the rules by the 2018 deadline. ACA also spoke with multiple third-party vendors who provide user guides and navigation devices about their existing products, as well as products in development that may comply with all or part of the requirements of Section 79.108. In this section and the next, ACA describes its understanding of the current state of the marketplace, but can make no guarantees about whether solutions that have not been fully adopted by MVPDs or are those that are still in development will be sufficient to satisfy the requirements discussed above.

Contrary to the Commission's expectations, the marketplace has not coalesced around a limited number of talking guide solutions developed by large operators that could later be deployed by small and mid-sized operators at a reasonable cost.³⁴ Instead, over the last five years, large MVPDs either developed their own advanced user interfaces or configured their network upgrades to run an advanced user interface developed by a third party.

Order") ("small cable operators have, in the past, experienced difficulty obtaining compliant devices in the same time frame as larger operators"); *Basic Service Tier Encryption, et al.*, Report and Order, 27 FCC Rcd 12786 ¶ 21 (2012) (anticipating that "large operators' demand for ... equipment eventually will lead all equipment to include" certain desired functionality). See also *Amendment of Part 73, Subpart G, and the Commission's Rules Regarding the Emergency Broadcast System*, Second Report and Order, 12 FCC Rcd 15503 ¶ 25 (1997) (recognizing that a delay in implementation for smaller companies would lead to a reduction in the price of equipment and would allow smaller operators to benefit in equipment cost reductions resulting from the efforts of larger operators).

³⁴ As discussed in Section II.B above, the Commission's expectations were reasonable in 2012, when large cable providers had systems with similar architecture and used similar user guides as smaller providers.

In some cases, large operators, particularly cable operators offering their video services via QAM, have incorporated the development and deployment of accessible user interfaces into their planned system upgrades as they invested millions of dollars to transition their networks to deliver their video services in all-digital, all-IP formats, or a hybrid of the two. As part of their system upgrades, several large operators have deployed (or are in the process of deploying) next generation set-top boxes with cloud-based program guides and a variety of advanced functions. Comcast, for example introduced the first of its kind accessible X1 platform in 2012, prior to the adoption Section 79.108, and gradually rolled it out across its footprint as part of its system-wide upgrades.³⁵ Cox later adopted the same platform as part of its “future state” video upgrade.³⁶ Charter took a similar approach, building talking guide functionality into its proprietary cloud-based Spectrum Guide, which it has been rolling out to systems across the nation as they are upgraded for this platform.³⁷

While cognizant of their legal obligations, these larger operators’ massive investments in next generation navigation devices and user guides were not primarily driven by the need to meet the Commission’s talking guide requirements, but rather by a conclusion that they could get an adequate return on investment by providing all of their customers with a next generation video experience. Accordingly, these larger operators were able to use the circumstances and timing of their planned upgrades to give them the opportunity to incorporate accessibility features from the ground up, rather than attempt to work with third-party guide and navigation device vendors to “bolt on” such features to older legacy equipment, firmware, and software.

³⁵ *Comcast Begins National Launch of X1: Next-Generation Cloud Enabled Television Platform and Introduces the X1 Remote Control App*, COMCAST (May 21, 2012), <http://corporate.comcast.com/news-information/news-feed/comcast-begins-national-launch-of-x1-next-generation-cloud-enabled-television-platform-and-introduces-the-x1-remote-control-app>.

³⁶ Jeff Baumgartner, *Cox Goes Wide With ‘Contour’*, MULTICHANNEL NEWS (Apr. 6, 2016, 7:00 a.m.), <http://www.multichannel.com/news/content/cox-goes-wide-new-contour/403883>.

³⁷ SPECTRUM, GET HELP & SUPPORT, <http://www.spectrum.net/support/tv/spectrum-guide-spectrum2/> (last visited Oct. 30, 2017).

Some of these larger MVPDs who have not yet deployed next generation navigation devices across all of their systems have also invested heavily in developing customized software solutions that allow customers to access user interfaces with talking guides through a peripheral mobile device. This approach was adopted by Altice, which offers the Optimum App for Accessibility for Amazon FireTV.³⁸ Charter has also taken this approach in some areas, and has developed and deployed a Roku Premier+ streaming device for use with its Spectrum TV app that utilizes Roku's Audio Guide text-to-speech screen reader for subscribers on systems that are not yet able to receive Charter's integrated Spectrum Guide solution.³⁹ Each of these app solutions are highly customized to the MVPDs that deploy them, and were developed at a significant cost.

All of the fully integrated solutions adopted by large operators – regardless of their approach – were highly specific to the operators' networks and services. As such, they cannot be used by small operators. The screen-reading technologies employed by these new user interfaces are not separable solutions that can be plugged into systems with older architectures and programming guides, but are integrated functions of the existing proprietary guides of the larger operators that work on their specific types of cable networks. To the extent that these technologies were even (or could be) made available for licensing by other operators, those operators would need to overhaul their systems, at significant expense, to ensure compatibility with the user interface and network architecture for which they were originally designed.

Because these guides were designed to work specifically with each large MVPD's networks, and not with the networks still used by the vast majority of smaller systems, small and mid-sized operators and operators of small systems cannot, as the Commission expected,

³⁸ OPTIMUM, FAQ-ACCESSIBILITY, <https://www.optimum.net/cdn/static.tvlistings.optimum.net/ool/static/prod/downloads/forms/FAQ-Accessibility.pdf> (last visited Oct. 24, 2017).

³⁹ SPECTRUM, ACCESSIBILITY, <http://www.spectrum.net/support/accessibility/talking-guide-information-and-support/> (last visited Oct. 24, 2017).

leverage the massive investments made by larger operators that allowed them to rollout talking guide solutions at a reasonable cost. As discussed below, some small operators have found ways to afford these upgrades and roll out a non-proprietary user interface that will allow for talking guides, but most small operators simply cannot afford to follow the same path as their larger brethren at this time.

Nonetheless, because terrestrial operators with more than 400,000 subscribers have undertaken the significant investments described above, and nearly every one of these operators' subscribers can subscribe to at least two other MVPDs – Dish and DirecTV – that offer navigation devices with talking guides, ninety two million current MVPD subscribers have access to three or more such providers.⁴⁰ The remaining five million subscribers that subscribe to an MVPD with fewer than 400,000 subscribers still have access the two satellite providers offering compliant solutions.

III. FULLY COMPLIANT SOLUTIONS ARE AVAILABLE FOR MANY SMALL OPERATORS TO PROVIDE ACCESSIBLE GUIDES UPON REQUEST AND PARTIAL SOLUTIONS ARE AVAILABLE FOR OTHERS

As discussed above, because the market for accessible solutions did not evolve as anticipated, small operators will not be able to use or adapt the technology that was developed by larger MVPDs to provide their subscribers with on-screen text menus and guides that are audibly accessible in real time. However, many mid-sized operators and a few smaller operators have also invested significant sums to offer non-proprietary advanced video services that will support talking guides. For the rest who have been unable to afford the upgrades necessary to adopt a fully integrated solution by the upcoming deadline, there are both retail and wholesale devices with talking guides that are either currently available or expected to be on the market soon. These devices will likely be sufficient to allow many operators to fulfill their

⁴⁰ These numbers are derived from SNL Kagan's *Report On Market Share Trends, Q1 2017*, SNL KAGAN, https://www.snl.com/web/client?auth=inherit#news/document?id=40667430&s_data=si%3D3%26kpa%3D54a32fe1-4697-480d-bdec-d989019b0136%26sa%3D.

obligations, but for others they may provide only partial solutions. For yet another small group of operators, however, there are no options available today or in development for the future. These operators may be unable to offer talking guides of any kind by the current December 2018 deadline. In the section below, ACA describes its understanding of the accessibility solutions that are currently available to operators in the marketplace or are likely to be available in time to meet the current delayed compliance deadline.

A. Many Mid-Sized and a Few Small Operators Have Invested In an Advanced User Interface That Should Permit Them to Meet the Commission’s Talking Guide Requirements by the 2018 Deadline.

Like larger MVPDs, over the last four years many mid-sized and a few small operators that deliver their video services via QAM have invested significant sums to upgrade their systems to offer an advanced user interface developed by TiVo for use on a wholesale basis. These cable operators using the TiVo “Quattro” platform can offer their customers all of their QAM-delivered video services, along with advanced features, such as a best-in-class accessible user interface and multiple-tuner DVRs.⁴¹ As with the system upgrades made by larger operators with QAM-delivered services, the wholesale TiVo rollout has been a massive undertaking for operators who have chosen to adopt that platform. These operators view the rollout as a major investment in their video services, designed to differentiate themselves in a highly competitive marketplace and thus provide a return on investment.

One of the many benefits of the TiVo wholesale platform is that it gives operators who have deployed it the ability to provide their customers with a talking guide solution. In fact, to ACA’s knowledge, the TiVo “Quattro” platform is currently the only wholesale, non-proprietary user interface with a programming guide that can provide a complete, accessible solution that is fully functional with all aspects of a cable operator’s QAM-based service. MVPDs that have

⁴¹ See, e.g., RCN, TOP 10 REASONS TO LOVE TIVO FROM RCN, <https://www.rcn.com/tivo/> (last visited Oct. 25, 2017); BLUE RIDGE, BLUE RIDGE DREAM, <http://www.brctv.com/tivo> (last visited Oct. 25, 2017).

adopted this platform should, without undertaking additional major system-wide upgrades, be able to provide navigation devices that are fully accessible with audible on-screen text and menus to blind and visually impaired subscribers upon request.⁴²

Small and mid-sized operators who have adopted the TiVo platform followed one of two paths – they have either entered into an individualized agreement with TiVo, or they have opted into a master agreement negotiated by the National Cable Television Cooperative (“NCTC”), the buying group used most small and mid-sized operators use to purchase video programming and equipment.

Beginning in the 2008 to 2010 timeframe, some mid-sized operators took the initiative and entered into direct deals with TiVo to be able to offer their customers set-top boxes with the TiVo interfaces. Early adopters of the TiVo platform spent a million dollars or more to retrofit their systems delivering QAM services to be able to offer their full programming lineup and video-on-demand through a device that utilized the TiVo user interface. While costs decreased as more and more mid-sized operators adopted the platform through direct deals with TiVo, the overall expense of adopting the platform through a direct deal still runs in the hundreds of thousands of dollars, making it prohibitively expensive for small operators.

In the last few years, another option for offering the TiVo interface has become available to some small MVPDs. Recognizing the benefits that mid-sized providers received from offering TiVo-based advanced services to customers, some smaller cable operators sought a more cost effective way to deploy it and worked through NCTC to strike a deal with TiVo that would lower an operator’s upgrade and integration cost.⁴³ Thus today, according to operators who have taken advantage of the NCTC deal, an operator that wishes to deploy the TiVo platform with

⁴² To enable this functionality, however, those MVPDs may need to pay an additional upfront licensing fee.

⁴³ NCTC, *TiVo and NCTC Partner to Deliver Members a Best-in-Class Pay-TV Choice* (Sept. 8, 2015), available at <https://www.nctconline.org/index.php/offering/business-operations/item/547-tivo-and-nctc-partner-to-deliver-members-a-best-in-class-pay-tv-choice>.

optional VOD can do so through the NCTC agreement with an initial investment of roughly \$100,000, plus the cost of the devices themselves and ongoing TiVo licensing fees.

In total, more than twenty-five small and mid-sized cable operators serving nearly 2 million subscribers in total have deployed the TiVo wholesale platform on some or all of their systems or have plans to do in the near future, either through a direct deal with TiVo or through the NCTC agreement.

As mentioned above, almost every domestic U.S. household has access to at least two MVPDs offering navigation devices with talking guides, and almost as many already have access to three or more such providers. Between those operators and smaller operators that are currently or will soon be offering the TiVo Quattro interface, it is likely that as many as ninety-seven percent of all domestic MVPD subscribers will have access to three or more MVPDs in their local market that can provide a talking guide that is fully compliant with all nine functions required by the Commission's rules, including VOD and DVR capabilities.⁴⁴

B. Other Solutions Are Currently or Are Expected to Be Shortly on the Market That Will Allow the Many Small Cable Operators That Cannot Afford to Deploy the TiVo Wholesale Platform to Meet their Talking Guide Obligations.

Because of its relatively high cost, the TiVo wholesale solution is not economically feasible for other operators with QAM-based systems because their video margins are razor thin and their subscriber bases are declining. These operators will therefore need to continue using legacy program guides. While ACA is unaware of any plans for the legacy platform vendors to upgrade their user interfaces to enable talking guide functionality, there are accessible solutions currently available or in development that could be deployed without the need for major system upgrades – one that could be made available to customers interested in leasing a navigation

⁴⁴ Virtually all domestic households have access to two satellite MVPD services that are currently subject to the talking guide requirements.

device with DVR, and one for those who prefer a less-advanced, lower-cost digital terminal adapter (“DTA”) option.

For blind or visually impaired subscribers who prefer a DVR, cable operators can, upon request, purchase at retail and provide the TiVo “Bolt,” which is a CableCARD navigation device that complies with the Commission’s talking guide requirements and provides a multiple tuner DVR capability.⁴⁵ The ability to purchase and distribute a compliant retail CableCARD device is a readily available solution for these providers provided the volume of eligible requesting subscribers is fairly low. That is because purchasing the accessible retail TiVo device and subscription is a fairly expensive solution for small cable operators when considered on a per-customer basis – the Bolt itself has a minimum purchase price \$199.00 plus a monthly service charge of \$14.99.⁴⁶ However, this represents a significantly more economical solution, provided the number of subscribers likely to request such a device is relatively small, than the system-wide upgrades needed to implement the TiVo wholesale platform.

For subscribers looking for a lower-cost approach, ACA has reason to believe that there will soon be available a simpler, low-cost DTA navigation device with an audibly accessible user interface that is compatible with most network architectures.⁴⁷ These DTA devices, which would

⁴⁵ The device also offers a variety of other advanced services that most small operators’ standard navigation devices do not, including access to on-demand over-the-top video apps such as Netflix, Amazon, and Hulu, as well as a unified search across all video platforms. See TiVo, TiVo BOLT VOX, <https://www.tivo.com/shop/bolt-detail> (last visited Oct. 25, 2017).

⁴⁶ TiVo, BUY TiVo BOLT VOX, <https://www.tivo.com/shop/buy-bolt> (last visited Oct. 25, 2017). TiVo also offers service plans on an annual basis for \$149.99 or on a lifetime basis for \$549.99.

⁴⁷ Most small and mid-sized MVPDs that do not use a TiVo wholesale platform use one of two user guides – Cisco’s Ciena or TiVo’s i-Guide (formerly provided by Rovi). Ciena operates only within Cisco-manufactured controllers, while i-Guide works with a variety of controllers, including individually owned Arris Digital Addressable Controllers (DACs), the Arris National Authorization Service - Regional Access Controller (NAS-RAC), Arris’s HITS Quick Take+, and the Comcast Technology Solutions HITS National Authorization Service (NAS). ACA believes that the non-DVR accessible solution under development will work with most i-Guide users – specifically those that use an Arris Digital Addressable Controller (DAC), the Arris National Authorization Service - Regional Access Controller (NAS-RAC), or the Comcast Technology Solutions National Authorization Service (NAS). TiVo’s i-Guide is a legacy programming guide that is distinct from the TiVo Experience discussed in Section II.A. TiVo, i-GUIDE, <https://business.tivo.com/products-solutions/ux/classic-guides/i-guide.html> (last visited Oct. 30, 2017).

not have DVR functionality, are expected to be available for wholesale purchase, and not require a significant monthly subscription fee, so should be affordable for cable operators of all sizes.

C. For Technical Reasons, Solutions that Are Currently or Are Expected to Be Shortly on the Market, Will Provide Only Partial Solutions for Some Small Cable Operators and For Others There Will Be No Commercially Available Solution.

While many small cable operators will have commercial solutions available to them, depending on the system's architecture these solutions may only be partial solutions. For some small operators, there will not be any solutions available.

1. Systems Offering QAM-Delivered Video on Demand Have Only Partial Solutions For Technical Reasons.

For systems offering QAM-delivered video-on-demand ("VOD"), there will be no solutions on the market that allow for full compliance. Neither retail CableCARD-enabled devices nor the DTA device discussed above permit two-way communications with QAM-based services. This means that a subscriber using either device will not be able to access any QAM-delivered VOD offered by its cable operator.⁴⁸ Since the rules require MVPDs providing VOD services through on-screen texts or guides on an operator's navigation device to make these features audibly accessible to consumers, both devices can be considered an economical but only partial solution for systems offering QAM-delivered video.⁴⁹

2. Some Systems Are Unlikely to Have Any Solutions Available By the Deadline For Technical Reasons.

Despite the options described above, there are two small (and likely overlapping) subsets of small cable systems that will not be able to provide talking guides of any sort by the

⁴⁸ Many very small cable operators do not offer any video-on-demand service to their customers, and many small cable operators that offer video-on-demand have not been investing in the service in recent years as consumers have increasingly turned to over-the-top providers for their video-on-demand needs.

⁴⁹ However, while neither device is able to receive an operator's QAM-based VOD, the TiVo Bolt can provide access to alternative VOD content from over-the-top providers like Hulu and Netflix. ACA believes that the accessible DTA device may allow access to similar VOD content as well.

December 20, 2018 deadline – systems that do not offer their entire channel lineup in digital format and systems that do not offer broadband Internet access service.

At this time, it appears that the two likely solutions available for systems that are not using the TiVo wholesale platform will not include analog tuners, which means that any channels delivered in an analog-only format (for example, channels on an unencrypted analog-only broadcast basic tier), will not be viewable on these devices.⁵⁰ Thus, any systems offering some channels in an analog only format do not currently have any solution today or likely to have any solution in the future.

Additionally, both the TiVo Bolt and the accessible DTA device under development also require broadband Internet access to obtain the data and information to populate their guides. Any systems that do not also offer broadband connections will not be able to offer customers a navigation device with talking guide capabilities.

IV. MID-SIZED AND SMALL MVPDS PROVIDING VIDEO SERVICE VIA IPTV WILL NEED THEIR VENDORS TO PROVIDE THEM SOLUTIONS AS WELL

ACA's research was limited primarily to accessibility solutions for providers that deliver programming using QAM cable systems. However, many ACA members deliver their services in an IPTV-only format and these mid-sized and small MVPDs cannot afford the significant cost to design talking guide solutions for themselves. As such, they will require their vendors to provide them solutions. At this time, ACA is not aware of any large vendor of IPTV user interfaces that service these systems that meet the Commission's accessible requirements,

⁵⁰ Although Section 15.117(b) of the Commission's rules require all television broadcast receivers to "be capable of adequately receiving all channels allocated by the Commission to the television broadcast service," the Commission granted TiVo a waiver of that and other relevant requirements, determining that such a waiver was in the public interest because it would "reduce the cost and power consumption of TiVo DVRs and provide consumers with a retail set-top box option that can better compete with devices leased by cable operators, thus enhancing competition in the retail set-top box market." *TiVo, Inc. Petition for Waiver of Sections 15.117(b), 15.118(b), 12.123(b)(1), 15.123(c), and 15.123(d) of the Commission's Rules*, Memorandum Opinion and Order, 28 FCC Rcd 12181 (2013). The Commission has granted similar waivers to equipment manufacturers, and ACA believes it unlikely that an accessible DTA device will come to market without a such a waiver in place. See *Samsung Electronics America, Inc. Petition for Waiver of Section 15.118(b) of the Commission's Rules*, Memorandum Opinion and Order, 28 FCC Rcd 12941 (2013).

despite their awareness of the upcoming compliance deadline. In reply comments, ACA intends to provide additional information on the likely availability of solutions for its IPTV provider members.

V. CONCLUSION

The foregoing demonstrates that the MVPD industry is moving toward solutions that will provide fully accessible UIs and programming guides and menus to most customers, and that there are at least partial solutions available for many more. Nonetheless, there will likely remain a very small subset of cable operators that cannot and may never be able to offer navigation devices with any accessible user interfaces to their customers.

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