

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

In the Matter of	)	
	)	
TiVo Inc.	)	
Petition for Clarification or Waiver	)	
of 47 C.F.R. § 76.640(b)(4)	)	
	)	CS Docket No. 97-80
Implementation of Section 304 of the	)	
Telecommunications Act of 1996;	)	
Commercial Availability of Navigation	)	
Devices	)	

**PETITION OF TIVO INC.  
FOR CLARIFICATION OR WAIVER OF 47 C.F.R. § 76.640(b)(4)(iii)**

July 25, 2012

## SUMMARY

TiVo Inc. (“TiVo”) respectfully requests that the Media Bureau of the FCC clarify the requirement that cable operator-distributed set-top boxes include an industry-standard home networking interface, and grant TiVo a limited waiver to comply with such requirement. TiVo supports this provision and will be prepared to implement such an interface once TiVo is capable of understanding its final specifications, obtaining necessary intellectual property licenses, and implementing the technology in TiVo products. However as currently written, any of a number of standards could be used and claimed to be compliant, resulting in a fragmented market that undermines the very intent of the requirement. Because TiVo is not itself a cable operator and has a very small share of the market for set-top boxes as supplied to operators, TiVo must wait upon decisions of others before it can ascertain the necessary industry standards and begin implementation. If, in the interim, TiVo products are considered noncompliant, TiVo’s investments to date to gain even a small foothold in the market to supply products to operators would be impaired or destroyed. Such a result would be counter to the goals of the Commission’s rules under Section 76.640: to promote competition in video navigation devices, offer cable operators and consumers an alternative to the incumbent set-top box providers used by cable systems, and to promote innovation by expanding the functionality of set-top boxes.

TiVo DVRs already support home networking and Internet connectivity through Ethernet and optional Wi-Fi interfaces. Because TiVo products are available at retail TiVo has a market incentive to support home networking technologies and to conform to industry standards once they are clarified by the Commission and supported by cable

operators in their procurements from their major suppliers. TiVo's share of the market to supply cable operators, however, is too small for TiVo either to anticipate or to lead in the adoption of an industry standard as required by Section 76.640(b)(4)(iii). Therefore, TiVo respectfully requests that the Commission clarify its expectations for the home networking interface and grant TiVo a waiver of 76.640(b)(4)(iii) until 12 months after cable operators have deployed to actual cable subscribers, as sourced from their major vendors Cisco and Motorola (which combined account for the majority of the cable operator market), at least 100,000 set-top devices from each major vendor, that are fully compliant, pursuant to Media Bureau clarification, with a private sector developed "open industry standard" as required by Section 76.640(b)(4)(iii).

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**PETITION OF TIVO INC.  
FOR CLARIFICATION OR WAIVER OF 47 C.F.R. § 76.640(b)(4)(iii)**

TiVo Inc. (“TiVo” or “Petitioner”) respectfully requests a clarification and a waiver with respect to the requirement that suppliers of set-top devices to cable operators must include an industry standard, interactive and recordable home networking interface, as set forth in Section 76.640(b)(4)(iii) of the Commission’s Rules.<sup>1</sup> TiVo fully supports this provision and intends to comply expeditiously with a uniform requirement based on a private sector developed “open industry standard,” once (1) the provision is clarified so that the major suppliers of such products can identify and implement such a standard; (2) the major suppliers have implemented and deployed products according to the standard in sufficient quantity for TiVo to ascertain that the standard implemented in MSO products (a) conforms to the regulation, (b) will be interoperable with competitive products; and (3) an achievable date for TiVo’s compliance, based on these factors, can be set. Because none of these benchmarks has yet been achieved, and the rule’s compliance date is only

<sup>1</sup>47 C.F.R. § 76.640(b)(4)(iii).

four months away, TiVo requests this waiver of the December 1 compliance date, applicable to any cable operator who distributes high definition set-top boxes supplied by TiVo, pursuant to sections 1.3, 76.7 and 76.1207 of the Commission's rules.<sup>2</sup> In the absence of such a waiver, cable operators that otherwise may source innovative TiVo retail products for their own distribution may feel obliged to suspend any dealings with TiVo, where as they would continue to deal with their major and customary suppliers, who are more integral to their plans to comply with Section 76.640(b)(4)(iii). Such an outcome would be perverse to the Commission's objectives under Section 629.

### **Factual Background**

#### **I. TiVo's DVRs**

TiVo introduced the first consumer digital video recorder ("DVR") in 1999.<sup>3</sup> Currently, TiVo is the leading maker of standalone DVRs for retail sale. All of TiVo's current high definition DVRs in the United States receive and record high definition digital cable and use CableCARDS to provide access to encrypted cable content.<sup>4</sup> In addition to being fully functional Unidirectional Digital Cable Products, TiVo's HD DVRs support interactive features, including program guides, broadband video on demand services (e.g. Amazon.com, Blockbuster and Netflix Instant Streaming), and remote scheduling, through an Internet connection.<sup>5</sup> The HD DVRs also support home networking through an Ethernet port or optional wireless (Wi-Fi) adapter.<sup>6</sup> When connected to a home network, the HD DVRs can send high-definition video to another

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<sup>2</sup>47 C.F.R. §§ 1.3, 76.7 and 76.1207, respectively.

<sup>3</sup>"History of TiVo," <http://www.TiVo.com/aboutTiVo/jobs/historyofTiVo/>.

<sup>4</sup> "TiVo HD DVR Product Information," <http://www.tivo.com/dvr-products/tivo-hd-dvr/index.html>.

<sup>5</sup>*Id.*; "How to Get TiVo Anywhere," <http://www.tivo.com/mytivo/howto/gettivoanywhere/index.html>.

<sup>6</sup>"Connect your TiVo DVR to the Network and the Internet," [http://www.tivo.com/mytivo/howto/getconnected/howto\\_connect\\_dvr\\_internet.html](http://www.tivo.com/mytivo/howto/getconnected/howto_connect_dvr_internet.html).

TiVo set top box, a PC, or a mobile device (using software on a PC). The HD DVRs can also accept video, music files, and photos from a PC on the home network. These functions enable far more real-world, home network interactivity than has been achieved through the IEEE 1394 interface that, as implemented to date, has been effectively supplanted by the revised Section 76.640(b)(4)(iii). Moreover, as announced and demonstrated at the Cable Show in May, 2012, TiVo is introducing to both its retail and cable operator markets an advanced Internet Protocol home networking feature that will support interactive operation of other home network products.<sup>7</sup>

TiVo DVRs compete with DVRs sold to cable operators by other set-top box providers. According to industry statistics for 2010, two providers, Cisco and Motorola, account for the majority of the cable operator set-top box market and jointly shipped over *25 million* units to North American cable operators.<sup>8</sup> Cable operators are seeking competitive alternatives to the current set-top box suppliers and TiVo is seeking an alternative by providing the current HD DVR (and future models) to cable operators for deployment to subscribers. Thanks to the common availability of CableCARDS, TiVo has been able to make inroads in this market by supplying to operators versions of its products that generally are for sale at retail. TiVo has made significant investments in adapting its retail products for provision by operators, including integrating with several different cable VOD system vendors, modifying its manufacturing and procurement processes to match MSO requirements, and adding MSO logo and branding options specific to each MSO customer. Despite this investment and some early success in entering the MSO market, operators might now refrain from ordering these products

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<sup>7</sup>See, <http://www.engadget.com/2012/05/21/tivo-stream-ip-stb-cable-show-2012/>

<sup>8</sup>Source: IHS Screen Digest

unless and until the operator is satisfied that they will be considered compliant with regulations that pertain to operator-supplied devices, or are covered by an appropriate waiver. This uncertainty could reverse our success in offering products that are competitive to those of the two incumbent major suppliers. Yet the volume supplied by TiVo to cable operators currently might be considered a rounding error compared to the volume shipped and deployed from the two major industry vendors. These vendors also, due to their large market share, characteristically work with operators on their advance plans much more closely than do other suppliers.

**II. The Regulatory Requirement of an Industry Standard Home Network Interface.**

Under section 76.640(b)(4)(iii), high definition set-top boxes distributed to subscribers must, by December 1, 2012, support an industry standard home networking interface. A cable operator must:

(iii) Effective December 1, 2012, ensure that the cable-operator-provided high definition set-top boxes, except unidirectional set-top boxes without recording functionality, shall comply with an open industry standard that provides for audiovisual communications including service discovery, video transport, and remote control command pass-through standards for home networking.

TiVo was one of the entities that, by filing for a waiver of the prior “1394” requirement, and explaining why an IP-based, Ethernet requirement was preferable, helped to persuade the Commission of the necessity of this provision. TiVo explained that:

Since 2002, home networking devices and technologies for video have flourished, but primarily through Internet Protocol-based networking over Ethernet, Wi-Fi, and other media, rather than 1394. Nearly every computer sold today supports IP over Ethernet. Networked consumer electronics devices also use IP. The DLNA inter-industry standards, which are now in use by numerous manufacturers and devices, uses IP for

home networking. The cable industry has also acknowledged the shift towards IP. Its research arm, CableLabs, has approved IP-based outputs protected by DTCP-IP for use in unidirectional, tru2way, and DCAS products.<sup>9</sup>

While Internet Protocol, WiFi and Ethernet have clearly become established with respect to the *physical* networking standards for consumer devices there still remain multiple options, many of which are proprietary, for the *protocols* used over these networking standards. For example there are several choices of protocols for device discovery, media formats, streaming protocols, and DRM and security. Groups such as DLNA are trying to define an open, finite set of such protocols through video ‘profiles.’ Unless and until some limited set of options is applied to the requirement, it remains too ambiguous and fails in its intent.

### **Argument**

#### **I. Legal Standard**

Should the Commission find that a waiver is necessary, the relevant standard is stated in Sections 1.3 and 76.7 of the Commission’s Rules. Section 1.3 allows the Commission to waive any provision of its Rules for good cause shown, while Section 76.7 specifically allows the Commission to waive any part of Section 76 “[o]n petition by any interested party.” Waiver is particularly appropriate where it will not undermine, but will in fact promote, the goals of the underlying rule. *See WAIT Radio v. F.C.C.*, 418 F.2d 1153, 1157(D.C. Cir. 1969) (“[A] general rule, deemed valid because its overall objectives are in the public interest, may not be in the ‘public interest’ if extended to an applicant who proposes a new service that will not undermine the policy, served by the rule, that has been adjudged in the public interest.”).

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<sup>9</sup>See Petition of TiVo Inc. for Clarification or Waiver of 47. C.F.R. § 76.640(b)(4), Nov. 6, 2009.

## **II. Petitioner's Interest**

TiVo is seeking to promote competition by providing set-top boxes to cable operators for distribution to their subscribers. TiVo is a small company and its ability to provide a competitive alternative to traditional set-top box suppliers depends largely on its ability to leverage its investment in innovations for its retail DVRs. The applicability of Section 76.640(b)(4)(iii) to the TiVo HD DVR affects TiVo's ability to sell its products to cable operators without modification and resulting cost increases. Therefore, TiVo is an "interested party" with standing to petition for clarification or waiver.<sup>10</sup> The Commission has granted equipment-related waivers to set-top box manufacturers with the understanding that cable operators – the regulated entities – can rely on such waivers when distributing the specified equipment.<sup>11</sup>

## **III. Granting TiVo's Request Will Advance the Goal of Section 629: Choice and Competition in Cable Navigation Devices**

The Commission's cable navigation device compatibility rules were instituted to promote the goal mandated by Congress in Section 629 of the Telecommunications Act of 1996: to promote competition and consumer choice in cable devices by assuring retail availability.<sup>12</sup> TiVo, since its inception, has provided cable subscribers with choice and empowerment, both benefitting from and furthering the goals of Section 629 and the Section 76 regulations. By providing DVRs to cable operators to distribute as leased devices to subscribers, TiVo will be able to enhance competition and choice even further, offering both cable operators and their subscribers a proven and popular alternative to the DVRs typically furnished by the service provider.

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<sup>10</sup>47 C.F.R. § 76.7.

<sup>11</sup>Evolution Order ¶ 16 n.44 (rel. June 1, 2009).

<sup>12</sup>47 U.S.C. § 549.

TiVo HD DVRs comply with all relevant regulations for operator-distributed set-top boxes. Most importantly, they comply with the integration ban of Section 76.1204 by relying on CableCARDS for separable security. The same TiVo HD DVR experience that is offered to consumers in the retail environment can be made available to cable operators as a proven, successful home entertainment platform. Part of TiVo's value to cable operators is that it offers an existing, popular retail offering for use in a leased set-top box. If retail products were not available for acquisition by cable operators, the time, resources, and expense of having to develop, manage, and inventory a separate product line (including different software and/or hardware) for cable-only deployment would have to be included in the cost of the product and would delay, and possibly reduce, the introduction of competition into the cable set-top box market with no resulting benefit to the cable operator or consumers.

**IV. Clarification Is Necessary For 76.640(b)(4)(iii) to Achieve Its Purpose.**

The requirement that products implement "an" open industry standard may be beneficial to home networking and to competition in the market for devices that attach to cable (and, potentially, other MVPD) systems. Insight into (1) standards development and deployment, and (2) the Commission's expectations, however, is necessary in order for any benefits to be realized. If each cable operator deploys set-top devices based on its *own* understanding of "an" open industry standard, the result may be an outcome that, in terms of home network interoperability, is neither standard nor open.

TiVo is aware that the DLNA standards development consortium has made important strides, in its published standards and specification references, toward some common understanding of what will constitute "an open industry standard" that fulfills

the metrics listed by the Commission in 76.640(b)(4)(iii). This publicly available information, however, is not sufficient for TiVo to develop a robust *retail* product (hence, interoperable with all systems to which any retail customer may subscribe) that may also be supplied to cable operators. Irrespective of whether any particular cable operator believes it will be offering a compliant solution by December 1, TiVo cannot be assured that its “retailable” solution will be considered compliant – and hence purchased by an MSO, even though the MSO’s *customers* may freely purchase and use it – unless and until the Bureau clarifies the references and expectations pertinent to “an open industry standard.”

The Bureau has repeatedly and recently issued waivers based on its understanding that smaller participants in the navigation device market must be followers rather than leaders. Most recently, the Bureau extended its waiver grant to Baja Broadband, for noncompliant set-top boxes, on the basis that compliant DTAs are being made available to “major” participants but not yet to others.<sup>13</sup> TiVo’s situation is closely analogous – it must wait until cable operators, pursuant to the FCC’s clarification, settle on “an” open industry standard before it can produce a product that is (a) retailable and (b) satisfies 76.640.

**V. A Waiver Based On Deployment Factors Is Necessary For TiVo To Participate In The Market For Operator-Provided DVRs.**

Because, for the reasons set out above, TiVo must ascertain the nature and details of cable industry compliance before it can finalize its own implementation, TiVo, uniquely, cannot begin to implement a fully compliant solution until (1) TiVo more

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<sup>13</sup> Request of Baja Broadband for Extension of Waiver of Section 76.1204(a)(1) of the Commission’s Rules, DA12-899, CS Dkt. No. 97-80, CSR-8537-Z, Memorandum Opinion And Order, noting that “DTAs are being shipped first to the larger cable operators and that DTA manufacturers will not provide a committed delivery date for smaller orders.” (June 7, 2012)

specifically understands the Bureau's expectations as to compliance metrics and date, and (2) TiVo is aware of how these metrics are being implemented in the product deployments of the major industry suppliers, and how products are being finally configured by major operators. Therefore, unlike the major operators and their suppliers, TiVo cannot even begin implementation based on a general understanding and interpretation of 76.640(b)(4)(iii). TiVo must pause to see how the Bureau's guidance, in the real world, is being implemented by cable operators and their primary vendors.

The majority of DVRs are supplied to cable operators in the United States by major vendors (Cisco and Motorola) that, customarily, are privy to and included in an operator's advance and long-term planning process. By contrast, TiVo's share of the market for DVRs procured by cable operators is on the order of 1%, and TiVo lacks comparable insight into, and experience with, MSO system and development planning. Yet, because it is not economically feasible for TiVo to develop and maintain separate home networking solutions for retail and operator deployments, TiVo needs to be able to understand and test any solution adopted by the cable industry before it can be implemented in any of its products. Although TiVo already offers a home networking solution on the DVRs supplied to cable operators, if TiVo's implementation is not compatible with the implementation adopted by the broader cable industry, TiVo's implementation of the 76.640(b)(4)(iii) will be hampered commercially and would likely be rejected for acquisition by MSOs.

Implementation of an "open industry standard" requires that the overall cable industry adopt an open standard which small vendors like TiVo can implement. Accordingly, where the subject is the implementation of Section 76.640(b)(4)(iii) in

products that can also be supplied to the cable industry, TiVo needs sufficient time to *follow* the cable industry, not lead. The Commission and the Bureau have recognized that competitive entrants that are not in a position to implement industry standard approaches should be given additional time to comply with Commission rules that require standard interfaces.<sup>14</sup>

Once TiVo understands exactly what open industry standard the industry is adopting so TiVo can create its own specifications, TiVo projects that implementation will take approximately one year. Therefore, TiVo respectfully requests that the Commission clarify its expectations for the home networking interface and grant TiVo a waiver of 76.640(b)(4)(iii) until 12 months after cable operators have deployed to actual cable subscribers, as sourced from their major vendors Cisco and Motorola, at least 100,000 set-top devices from each major vendor, that are fully compliant, pursuant to Media Bureau clarification, with a private sector developed “open industry standard” as required by Section 76.640(b)(4)(iii).

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<sup>14</sup>See, e.g., Cablevision Systems Corporation’s Request for Waiver of Section 76.1204(a)(1), DA 07-48, 22 FCC Rcd 220 (2007) (“Cablevision Waiver Order”). The Commission has also allowed IPTV entrants to proceed in the marketplace while they search for a conditional access solution that complies with Section 629. See, *Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Requests for Waiver of Section 76.1204(a)(1) of the Commission’s Rules*, CS Dkt. No. 97-80, *Bernard Telephone Company Inc.*, CSR-7886-Z, *Colo Telephone Company*, CSR-7887-Z, *Coon Creek Telephone Company and Coon Creek Telecommunications Corp.*, CSR-7888-Z, *F & B Communications, Inc.*, CSR-7889-Z, *Farmers Cooperative Telephone Company*, CSR-7890-Z, *Heart of Iowa Communications Cooperative*, CSR-7891-Z, *Kalona Cooperative Telephone Company*, CSR-7892-Z, *LaMotte Telephone Company*, CSR-7893-Z, *Local Internet Service Company*, CSR-7903-Z, *Mahaska Communication Group, LLC*, CSR-7894-Z, *Radcliffe Telephone Company, Inc.*, CSR-7895-Z, *South Slope Cooperative Telephone Company*, CSR-7896-Z, *Wellman Cooperative Telephone Association*, CSR-7897-Z, *West Liberty Telephone Company*, CSR-7898-Z, *Winnebago Cooperative Telecom Association*, CSR-7899-Z, Comments of CEA (June 4, 2008); *Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, CS Dkt. 97-80, CSR-7218-Z – CSR-7222-Z, CSR-7227-Z, Comments of the CEA on Six Requests for Waiver of 47 C.F.R. § 76.1204(a)(1) (July 5, 2007).

**VI. Granting the Request Will Cause No Harm to Other Interested Parties and Will Be of Benefit to Consumers.**

Because TiVo's share of the cable set-top box market is so small, the grant of this waiver to TiVo will not impede operator compliance with Section 76.640(b)(4)(iii) or delay the development of a true industry standard. Indeed, TiVo anticipates that implementation of the open industry standard will be backwards compatible with the models of set-top boxes that it is currently providing to cable operators, so additional time to follow the larger entities should have no negative impact whatsoever. If anything, by focusing on the need to arrive at implementation of "an open standard" that is interoperable for retail devices as well, any broad scale effect of a grant will be to help move the industry toward the Commission's goal of home network interoperability. Consumers at large will be aided by the grant of this waiver because a retail market in navigation devices can exist only if such devices are generally interoperable on home networks. This expectation and requirement is at the core of TiVo's application. On an interim basis, TiVo will continue to provide IP-based home networking features in products sold or licensed by TiVo and provided to cable operators (similar to other products and services currently offered by the operators) and sold at retail, so as to support compatible home network devices.

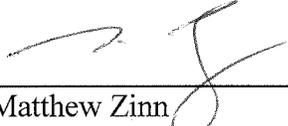
**VII. Conclusion**

TiVo's ability to leverage its retail products to offer cable operators a competitive alternative to their traditional set-top box vendors has injected competition and choice into a market that for too long was closed to meaningful competition. It would benefit no-one for this competition to be impaired or lost due to the same factor – dominance of the market by a few suppliers – that made competition necessary in the first place. In

order for TiVo to continue to adapt its retail products for acquisition by cable operators, the operators must have assurance that TiVo products will be considered compliant with Section 76.640, and TiVo must understand how Section 76.640(b)(4)(iii) will actually be implemented by cable operators generally. Until there is a generally accepted, industry-standard implementation and deployment of this section by the major and customary suppliers to the industry, TiVo will not be able to make compliant and interoperable products. Therefore, TiVo respectfully requests that the Commission clarify its expectations for the home networking interface and grant TiVo a waiver of 76.640(b)(4)(iii) until 12 months after cable operators deploy to actual cable subscribers at least 100,000 fully compliant set-top boxes from each of the major industry suppliers.

Respectfully submitted,

**TIVO INC.**

  
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