

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

Implementation of Section 304 of the Telecommunications Act of 1996)))	CS Docket No. 97-80
Commercial Availability of Navigation Devices))	PP Docket No. 00-67
Compatibility Between Cable Systems and Consumer Electronics Equipment)))	

COMMENTS OF TIVO INC. ON
FOURTH FURTHER NOTICE OF PROPOSED RULEMAKING

June 14, 2010

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TiVo Inc. thanks the Commission for addressing the problems facing video navigation device manufacturers and users, in furtherance of the goals of Section 629 of the Communications Act. This is precisely the type of “further action” that the Commission had in mind from the outset of its implementation of Section 629 over a decade ago.¹ As the Commission has recognized, TiVo and the few other manufacturers of Unidirectional Digital Cable Products (UDCPs) still face an uneven playing field vis-à-vis leased set-top boxes. Unequal treatment in terms of installation, pricing and

¹ *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, CS Dkt. No. 97-80, Report and Order at ¶ 16 (rel. June 24, 1998) (“Navigation Devices Order”) (“Our objective thus is to ensure that the goals of Section 629 are met without fixing into law the current state of technology. . . . In addition to enforcing the rules we adopt in this *Order*, we intend to monitor the progress of participants in these markets to ensure that the devices continue in the direction of portability, interoperability, wider availability, and increased consumer choice. If we find that market participants are not complying with our rules or are not progressing satisfactorily towards the principles and goals of this proceeding, the Commission will revisit the decisions and take further action to ensure a competitive marketplace and consumer choice in navigation devices. . . . Further, the broad goals of this proceeding extend beyond making navigation equipment commercially available, but in fulfilling the promise of the digital age to bring broader choices and opportunities to a wider group of consumers. If, for example, service providers retain the ability to limit substantially consumer access to content, applications, and other services, this result would not achieve the important goals of the statute.”).

programming has placed UDCPs at a competitive disadvantage and has held back the development of this market. Whether or not CableCARD is a long-term solution for assuring the retail availability of competitive navigation devices, it is the only solution we have today and the only solution consumers are likely to have in the near term.

Consequently, it is critical that the Commission act quickly to solve the problems plaguing CableCARD users, which the Commission has frankly acknowledged. While the Fourth Further Notice of Proposed Rulemaking (the FNPRM) identifies these problems,² TiVo believes the proposed rules do not go far enough to solve them. TiVo submits these comments to offer additional evidence of the “disparity in the subscriber experience for those customers who choose to utilize a navigation device purchased at retail,”³ to explain why the proposed rules are inadequate, and to advocate rule changes that will help to level the playing field for UDCPs and open up effective competition for retail-purchased set-top devices in the near term.

I. TiVo’s Interest As The Leading Manufacturer of Competitive Navigation Devices.

TiVo pioneered the affordable digital video recorder (DVR) concept in 1999 and is now the leading manufacturer of DVRs sold at retail. TiVo’s current models, the TiVo Premiere and Premiere XL, require a multistream CableCARD for conditional access to digital cable programming.⁴ They also have the ability to access video content from Netflix, Amazon, Blockbuster, and YouTube over a broadband Internet connection.

² *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment*, CS Dkt. No. 97-80, PP Dkt. No. 00-67, Fourth Further Notice of Proposed Rulemaking (rel. Apr. 21, 2010) (“FNPRM”).

³ FNPRM ¶ 3.

⁴ TiVo no longer manufactures any models of UDCP that use single-stream cards.

TiVo competes with digital video recorders provided by cable operators, including remote storage DVRs where recordings are stored at the cable headend rather than the set-top box. As the Commission has noted, very few manufacturers continue to produce consumer devices that can connect directly to digital cable systems,⁵ and thus Congress's instruction in the 1996 Telecommunications Act to assure the competitive availability of multichannel video navigation devices at retail remains unfulfilled.⁶ TiVo has made a significant investment in the CableCARD concept and has deployed the largest base of CableCARD-reliant devices sold at retail on the understanding that cable operators would provide the same quality of service and support to CableCARD-reliant devices as to leased devices. This has not occurred.

II. Fixing MSOs' Inadequate Support for CableCARDS Requires A Rule of Nondiscrimination.

Consumers have endured CableCARD support problems for almost a decade. The Commission, in this rulemaking, can and must write an end to this old and long story.

A. Lack of MSO Support Was Evident in TiVo's Recent Product Rollout.

The "disparity in the subscriber experience"⁷ for those who buy set-top devices at retail is pervasive, harmful to competition, and unnecessary. The record of this docket is replete with evidence of cable operators' poor support for CableCARD-reliant devices,⁸

⁵ *In the Matter of Video Device Competition, Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment*, MB Dkt. No. 10-91, CS Dkt. No. 97-80, PP Dkt. No. 00-67, Notice of Inquiry ¶ 10 (rel. Apr. 21, 2010) ("NOI").

⁶ 47 U.S.C. § 549(c).

⁷ FNPRM ¶ 3.

⁸ *See, e.g., In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices; Compatibility Between Cable Systems and Consumer Electronics Equipment*, CS Dkt. No. 97-80, PP Dkt. No. 00-67, Third Further Notice of Proposed

and the Commission and the courts have acknowledged the problem time and again.

Poor support for CableCARDS has effectively eliminated most UDCPs from the market, and it continues to harm TiVo and deny consumer choice. An illustrative selection of consumer comments posted to www.tivocommunity.com during the last few months is attached as Exhibit A.

Installation and activation of a CableCARD is often a time-consuming and frustrating extra step between the purchase and enjoyment of a DVR, and it distorts competition in favor of operator-supplied DVRs.⁹ Most operators require CableCARDS to be installed by a technician during a service appointment. As Cablevision argued in another proceeding, “truck rolls and appointments . . . are a burden on consumers, the [operator], and the environment.”¹⁰ CableCARD installation often requires *multiple* truck

Rulemaking at ¶¶ 1, 7 (rel. June 29, 2007); *In the Matter of A National Broadband Plan for Our Future, et al.*, GN Docket Nos. 09-47, 09-51, 09-137, and CS Docket No. 97-80, Comments of the Consumer Electronics Association on NBP Public Notice # 27, at 7-8 (Dec. 22, 2009); *In the Matter of A National Broadband Plan for Our Future, et al.*, GN Docket Nos. 09-47, 09-51, 09-137, and CS Docket No. 97-80, Petition for Rulemaking of Public Knowledge, *et al.*, at 7-12 (Dec. 18, 2009).

⁹ CableCARD installation horror stories are widespread. For one example, *see* <http://www.tivocommunity.com/tivo-vb/showthread.php?t=447595> (“I wanted to share this lovely FIOS experience with Tivo users here. I have had FIOS service for maybe 3+ years. The last two I have had two Tivo HDs with two s-cards in each. I purchased the Tivo Premiere. I called Verizon and stated I wanted two m-cards installed, one in each Tivo, and would return the 4 s-cards. The phone rep took the order and told me I could go to the Verizon Plus store to pick them up even though I questioned him on this and told him I believed a tech had to come out to install them. He sent me to a Verizon Plus store which no longer existed. Fun. I went to a different Verizon Plus store and they said they never carry cable cards. Fun. I called Verizon again. Different phone rep this time said they always send someone out to install cards so he setup an appointment. Appointment time following week comes and goes. A no show. I call back and of course order was screwed up in their system. Setup another appointment. No show again. I call Verizon and order was screwed up again. This time I tell them they need to fix this the next day which was a Saturday. Luckily they do. Of course, tech comes out with only a single m-card but is able to get another. I have a total of 4 order confirmation numbers for this nightmare process. None of them ended up being useful at all.”).

¹⁰ *Cablevision Systems Corporation Petition for Waiver of Section 76.630(a) of the Commission’s Rules As Applied to Cablevision’s New York City All-Digital Systems*, MB Dkt. No. 09-168, Petition for Waiver of Cablevision Systems Corporation at 3 (Aug. 19, 2009) (“*Cablevision Waiver Petition*”).

rolls.¹¹ Yet truck rolls are unnecessary in many cases, as CableCARDS were designed to be user-installed.

Once the CableCARD arrives, problems continue. Feedback from TiVo's customers confirms the Commission's finding of "poor performance with regard to subscriber premise installations of CableCARDS in retail devices."¹² During the roll-out of TiVo's Premiere DVR earlier this year, CableCARD installation and activation issues were the single largest source of calls to TiVo technical support. Many installations do not succeed without a three-way call between a TiVo technician, the cable installer, and the cable operator's call center, with TiVo's call center providing the CableCARD expertise that MSO staff often lack. Even though all recent TiVo models require multistream CableCARDS, in many instances installers have *refused* to provide multistream cards or been unable to procure them, even though their own operator-supplied devices use multistream cards. Even when installers have the correct type of card, many cards in circulation are nonfunctional, yet are returned to the truck and retried again and again with different subscribers, adding to their frustration.¹³ Our analysis of returns suggests that frustration with cable operators' failed attempts to install a CableCARD is causing customers to return TiVo DVRs to the store before ever

¹¹ NCTA reports that on average more than one truck roll is necessary per installation. See Letter from Neal M. Goldberg, Vice President and General Counsel, National Cable and Telecommunications Association, to Marlene H. Dortch, Secretary, Federal Communications Commission at 1 (June 26, 2009) (reporting average number of truck rolls to install CableCARDS in retail navigation devices: Cablevision 1.10; Charter 1.10; Comcast 1.13; Cox 1.10; Time Warner Cable 1.13).

¹² FNPRM ¶ 9.

¹³ See, e.g., <http://www.amazon.com/Comcast-wont-give-cablecard/forum/Fx1U1W8J2UGU9DT/Tx1LWAUPMI6TG91/?encoding=UTF8&asin=B000RZDBM2> ("It took 6 visits to my house, 9 faulty S-Cards, 4 faulty M-Cards, 30+ hours on the phone and most of my hair to get the TiVo HD up and running." "[The cable operator] just brought 8 CableCARDS and only 1 worked. I spent the whole day waiting for my Tivo HD to format them. Now I have to wait another 4 days for TWC to come back with more cards." "It took TW six, yes SIX separate trips, six wasted days to get the cableCARDS working for our TiVo's. They finally swapped out the S cards for M cards . . . except they forgot one of them . . . so they still aren't done. And I don't think I have the patience to have them finish the job right now.").

activating them. In many cases, MSO installers and call centers respond to CableCARD installation problems by attempting to switch the subscriber to a leased set-top box or DVR. Thus, under the existing regulations and the present level of Commission oversight, operators have been able to turn their inattention to CableCARD support to their own financial benefit.

In addition to professional installation support comparable to that afforded leased boxes, customers should be provided with the option to self-install CableCARDS. The CableCARD was designed to be installed by the subscriber, by simply reading two numbers from the first screen that appears once the CableCARD has been inserted and the device turned on. Rather than requiring widespread training of customer support staff, self-installation can be effectively achieved by routing the customer directly to a dedicated CableCARD support staff. Additionally, an automated system can allow the customer to input the required data through the phone keypad, bypassing any customer service representative queue. That self-installation has been achieved by those cable systems that have invested the necessary time and attention shows that this can, and should, be a service implemented by all others.¹⁴

Furthermore, because nearly all UDCPs on the market today require multistream CableCARDS, the rules should require that operators make multistream cards available by default, and single-stream cards on request. Establishing the most commonly required type of card as the default to be offered will reduce the confusion that TiVo users have

¹⁴ Comcast allows customers to self-install CableCARDS in certain systems, including systems in the San Francisco Bay Area and Broomfield, Connecticut. <http://www.dslreports.com/forum/r24006186-CT-Cable-Card-Self-Install>. (“Just completed a cable card self install with the same hardware (TiVo Premiere) at my office with Comcast Cable. Five minute phone call and the card was up and running.”)

reported when requesting multistream cards from poorly trained installers or call centers.¹⁵

B. Complaints and Enforcement

If a consumer wants to complain to the FCC about Amateur Radio, telemarketing, junk faxes, internet service billing, obscenity, deceptive advertising, DTV issues, cable modem issues, cable signal leakage, or a host of other issues, she can file an online complaint. Yet there is no easy mechanism for consumers to file complaints with the FCC about CableCARD issues. TiVo proposes that the FCC update its web site to permit consumers to file complaints about CableCARD issues. This would enable consumers to file complaints as easily as they can for other violations of Commission rules.

¹⁵ “Re: Multi-stream Cablecard / M-Card Availability,” <http://forums.verizon.com/t5/FiOS-TV-Technical-Assistance/Multi-stream-Cablecard-M-Card-Availability/m-p/16286>:

Verizon does not differentiate between M-CARDS and S-CARDS in their system. The system just says “CableCards.”

Customer service representatives are not educated on the differences between the two types of CableCards (M-CARDS and S-CARDS). That’s why chats go something like this:

You: Do you have CableCards?

Verizon: Yes.

You: Do you have M-CARDS?

Verizon: No, we only carry CableCards.

You: But a M-CARD is a type of CableCard. Do you have those?

Verizon: Sorry, sir, but we only have CableCards, not M-CARDS.

For those who do not know, S-CARDS were discontinued about a year ago, and Motorola has manufactured M-CARDS exclusively since. M-CARDS are virtually identical to S-CARDS with one key difference -- they can support multi-tuner products with a single card, thereby eliminating the need for the second card in dual-tuner products like the \$199-\$250 TivoHD.

Outside of possibly CA and some parts of PA, I don’t know of any FiOS service areas that still deploy the older S-CARDS. S-CARDS were discontinued a year ago, so once an area runs out, they do not get any more (outside of customer returns). For all intents and purposes, Verizon has now standardized on M-CARDS for new CableCard orders.

While we’re on the subject, Verizon will not ship CableCards to customers under any circumstances. What representatives see on their screen suggests they can order and ship CableCards (just as they do STBs and DVRs), but they cannot. They can place a CableCard order, but any order without an accompanying appointment is automatically canceled by the system at a later time.

Rules don't work if not enforced. The Commission should investigate and, if necessary, act on complaints involving CableCARDs just as it does with other rule violations. If a consumer requests a CableCARD installation and is not adequately served there should be consequences.

III. Retail Set-Top Boxes Need Direct Access to Switched Digital Video Channels via Communication Upstream to the Headend, Not an Operator-Supplied Set-Top Box.

As the Commission notes in paragraph 14 of the FNPRM, the tuning adapter solution does not fairly address the problems created for cable subscribers by switched digital video. Instead of a solution, this “adapter” is just another consumer-unfriendly set-top box that asks potential TiVo customers to settle for less than the technology they want and deserve. TiVo details below why the tuning adapter approach is inadequate and why an IP-based standard out-of-band communications protocol for selecting switched digital video channels provides a far better, pro-competitive, pro-subscriber solution.¹⁶

¹⁶ Whether the FCC's current rules provide for access to SDV for retail devices is in dispute. *See, In the Matter of Oceanic Time Warner Cable, A subsidiary of Time Warner Cable, Inc., Oceanic Time Warner Cable, a division of Time Warner Cable, Inc.; Oceanic Kauai Cable System; Oceanic Time Warner Cable, a division of Time Warner Cable, Inc.; Oceanic Oahu Central Cable System; Cox Communications, Inc.; Fairfax County, Virginia Cable System*, File Nos. EB-07-SE-351, EB-SE-352, Petition for Reconsideration or Clarification of TiVo Inc. (July 27, 2009) (attached here as Exhibit B). The Commission's rules must be amended to address access to SDV for retail devices to fulfill its mandate to implement Section 629 of the Communications Act. In the 1998 Report and Order, the Commission said Section 629's “important goals” would not be achieved if MVPDs retained “the ability to limit substantially consumer access to content, applications, and other services.” *Navigation Device Order* at ¶ 16. The Commission identified such access as an important goal, and said it would continue to “examine circumstances where commercial availability does not evolve and *access to programming and services is encumbered.*” *Id.* ¶ 18 (emphasis added). Clearly, no market for retail devices can develop if retail boxes don't have access to the same cable programming channels that they get with a leased box and for which they are paying. *See ex parte* letter from Matthew Zinn, Sr. Vice President, General Counsel, Secretary & Chief Privacy Officer, TiVo Inc. to Ms. Marlene H. Dortch, FCC, re: NBP Public Notice #27, GN Dkt. No. 09-47, GN Dkt. No. 09-51, GN Dkt. No. 09-137, CS Dkt. No. 97-80 (Feb. 17, 2010), a copy of which is attached hereto as Exhibit C. TiVo incorporates by reference, in these Comments, its *ex parte* letter and its Petition for Clarification or Reconsideration.

A. The Tuning Adapter is a Set-Top Box.

The cable industry's movement toward switched digital video represents a savings to cable operators at the expense of competitive device manufacturers, subscribers who are using – or desire to use – retail devices, FCC regulations, and the policies underlying Section 629. To make additional bandwidth available for the sale of programming, hundreds of channels, including many of the most popular HD channels, are now available on some cable systems only via switched digital. Consumers who purchase UDCPs cannot directly access linear channels delivered via switched digital video.¹⁷ Manufacturers of UDCPs therefore are disadvantaged in their ability to compete effectively against cable-supplied boxes. Consequently, switched digital video interposes yet another major hurdle to consumer acceptance of innovative navigation devices sold at retail.

When this issue first arose in 2005, the best solution would have been to develop a method whereby competitive set-top boxes could communicate upstream to the head-end, so as to obtain any switched-out channels in parity with cable-supplied products. TiVo proposed such a solution to the cable industry. In November 2007, after months of discussions with the cable industry, TiVo accepted what it hoped would be a reasonable market-based compromise: a set-back adapter or “dongle” promised to be the size of a deck of playing cards that could attach to various series of TiVo HD DVRs. As anticipated in the joint NCTA-TiVo press release, the compromise proposal would

¹⁷ FNPRM ¶ 14 at 6.

“enable TiVo users to enjoy innovative switched digital services *without the need for a set-top box.*”¹⁸ (Emphasis added.)

Unfortunately, the plan for a “compact” adapter was never realized. Instead, MSO vendors found it more convenient to repurpose obsolete set-top boxes and provide these as “adapters.”¹⁹ A picture of a Cisco Tuning Adapter on top of a TiVo DVR is attached as Exhibit D.

Moreover, the tuning adapter approach has suffered from support and service problems similar to those that have plagued the CableCARD. TiVo has done its part to make the solution work, including providing detailed information and instructions on TiVo’s website²⁰ and making charts and explanations available for cable operator use.²¹ Yet cable operators do little to inform consumers of the availability of tuning adapters, choosing instead to emphasize how switched digital video services make UDCPs less attractive.²² Indeed, as shown in Exhibit E, some systems inform consumers that there

¹⁸ Press Release, National Cable and Telecommunications Association and TiVo Inc., NCTA and TiVo Announce Switched Digital Solution for HD DVRs (Nov. 26, 2007), http://pr.tivo.com/easyir/customrel.do?easyirid=CA934452BA6418EF&version=live&prid=568951&releasejsp=custom_150.

¹⁹ Chairman Rick Boucher aptly described the tuning adapter as “awkward,” “bulky,” “difficult to connect and use,” and “as big as a set top box.” *The National Broadband Plan: Competitive Availability of Navigation Devices: Hearing Before Subcommittee on Communications, Technology, and the Internet of the House Committee on Energy and Commerce*, 111th Cong. (Preliminary Transcript of Hearing) (May 13, 2010), http://energycommerce.house.gov/Press_111/20100429/transcript.04.29.2010.cti.pdf at 46-47, <http://energycommerce.edgeboss.net/wmedia/energycommerce/2010.04.29.cti.wvx> at 1:12:08 - 1:13:07.

²⁰ See, e.g., http://support.tivo.com/app/answers/detail/a_id/307#WheretogetaTuningAdapter, http://support.tivo.com/app/answers/detail/a_id/133; http://support.tivo.com/app/answers/detail/a_id/73/kw/switched%20digital%20video/r_id/100041, http://support.tivo.com/app/answers/detail/a_id/148/kw/switched%20digital%20video/r_id/100041.

²¹ See http://www.timewarnercable.com/MediaLibrary/1/1/FAQ/Documents/ hookup/Tivo_TuningAdapterSelfInstall.pdf.

²² See <http://www.timewarnercable.com/nynj/site.faqs/Cable/CableCARD/If-I-have-a-cable-ready-HDTV-s>:

Question: If I have a cable-ready HDTV set, do I need a CableCARD or special HD set-top box to view HD programming?

Answer: An HDTV with a built-in QAM tuner does not require a set-top box to receive the HD signals of over-the-air broadcast stations. To receive your favorite cable and premium

are hundreds of channels “Not Available On CableCARDS,” *without any mention of tuning adapters whatsoever*.²³ Faced with the prospect of not being able to receive hundreds of popular channels, including 21 of the top 25 most highly rated cable programming channels in HD, it is no wonder why the number of consumers purchasing retail UPDCPs is relatively small.

Thus, cable operators’ implementation of switched digital video to date has provided only additional opportunities to dissuade, rather than to assure, competition in the navigation devices market, contrary to the intent of Section 629. For too many consumers, the inconvenience and annoyance of the tuning adapter experience outweighs the technological advantages of TiVo’s HD DVRs over less user-friendly cable-supplied boxes. As a result, while switched digital video has made more channels readily available to subscribers that rent equipment from the cable operator, it has further derailed the efforts of competitors like TiVo to make innovative products available at retail as envisioned by Section 629.

channels in high-definition, you will need to lease from Time Warner Cable an HD set-top box, unless you have a CableCARD-equipped tru2way™ device or UDCP. *Please note that some HD programming is delivered using Switched Digital Video (SDV), an interactive technology, and therefore cannot be accessed on a UDCP.* (Emphasis added.)

See also <http://www.charter.com/customers/support.aspx?supportarticleid=1868>:

As a one-way receiver, CableCARDS are unable to tune to digitally encrypted channels in areas where the Switched Digital Video (SDV) feature has been implemented. This impacts HDTV Cablecard and Cablecard Tivo device customers.

Customers with CableCARDS will, therefore, be unable to order IPPV or VOD programming or receive the Charter supplied i-Guide system (the digital on-screen menu/guide system for Charter programming) as these functions require signal response from the receiving unit to function. Customers with a CableCARD can order (call in and order by phone).

The majority of Charter’s set top boxes are two-way signal receivers and, unlike the CableCARDS, have PPV, VOD, and i-Guide functionality. (Emphasis added.)

²³ See <http://www.timewarnercable.com/northeast/support/clu/clu.ashx?ChannelFilter=All&CLUID=816&Zip=&SortByPackage=false>.

The Commission should promptly address and eliminate these impediments to competition. What is needed is a standard method to signal channel requests upstream, that makes access to subscribed channels as convenient and user-friendly for retail UDCPs as for cable-supplied rental equipment.

B. IP-Based Out-of-Band Communication between Competitive Equipment and the Headend Can Remedy the Disadvantages of Switched Digital Video.

Just as Judge Greene found that there was no legitimate need for AT&T to require customers to lease a PCA box (“protective connecting arrangement”) in order to attach a non-AT&T telephone,²⁴ there is no need to interpose a set-top box for upstream communication when an IP-enabled device is attached to the system via CableCARD.²⁵ IP-enabled products are capable of out-of-band communication with the cable system to select switched digital video channels. As explained below, this method has been proven to work with other video services and cable systems. It can be implemented using standard and existing protocols, at lower cost than the tuning adapter. Out-of-band communication capabilities will provide a forward-looking solution that can also smooth the transition to the AllVid adapter or future IP-based solution contemplated by the Commission’s April 22 Notice of Inquiry.

1. An IP-Based Out of Band Communication Solution has been Proven in the Marketplace.

Most UDCPs marketed today have a separate IP broadband connection. TiVo HD DVRs across the United States use IP connections to give consumers access to video on

²⁴ The analogous history of AT&T’s anticompetitive requirement that customers who purchased a non-AT&T telephone were required to connect it only through a leased, redundant “PCA” box is set forth in Judge Harold Greene’s opinion denying AT&T’s motion to dismiss the government’s antitrust case, *United States v. American Telephone & Telegraph Company*, 524 F. Supp. 1336, 1349-51 (D.D.C. 1981).

²⁵ See FNPRM at ¶ 14.

demand services such as Netflix, Blockbuster On Demand and Amazon Video, as well as to streaming web video content from YouTube and online music services like Rhapsody and, soon, Pandora. Each of these services is accessed through an IP backchannel using standard protocols.

TiVo already has shown that TiVo HD DVRs with CableCARDs can successfully access video-on-demand services offered by MVPDs. Through cooperation with the RCN Corporation, customers of RCN's cable service in the Washington, D.C. and New York City metropolitan areas can rent TiVo Premiere boxes that access RCN video-on-demand services, in addition to online services ordinarily accessible via the TiVo Premiere. Like the TiVo Premiere boxes available at retail, the RCN-supplied TiVo Premiere boxes require Internet service as well as a cable connection. The TiVo Premiere HD DVRs made available through RCN also offer consumers multiple features and benefits not available on the cable-supplied DVR rental boxes otherwise offered to RCN customers.²⁶ The collaboration between TiVo and RCN has begun only recently, but has garnered rave reviews from RCN customers.

These experiences with cable and Internet-based video services demonstrate that an IP backchannel can enable TiVo users to successfully select switched digital video channels from any cable video service. Cable operators that use switched digital video already have developed a protocol for communication of consumer channel requests to the cable headend. Moreover, many cable operators already have substantial experience with IP-based selection and delivery of video programming, and have made substantial financial commitments to video delivery using Internet Protocol. The "TV Everywhere" initiative uses Internet Protocol to allow portable devices to select and receive video

²⁶ See <http://www.rcn.com/j/tivo-in-dc>; <http://www.rcn.com/j/tivo-in-ny>.

programming delivered by the cable operator. Thus, cable operators have shown it is eminently feasible, efficient, secure, and affordable to use out-of-band communications to enable consumers to select channels. Adapting those IP-based protocols for out-of-band IP-based communication from UDCPs should be readily achievable within a short timeframe.

TiVo is confident that a simple and straightforward method can be used to adapt this communications protocol for UDCP consumers using an IP backchannel. At a May 13 hearing before the Internet and Telecommunications Subcommittee of the House Energy and Commerce Committee, NCTA President Kyle McSlarrow, when pressed on this subject by Chairman Boucher, agreed:

The IP back channel is a legitimate issue. . . . [W]e are open to exploring IP back channel so you could signal upstream to the headend that is an open standard, that would be available to any consumer electronics manufacturer who wants to avail it²⁷

Thus, there appears to be no serious dispute that use of an IP backchannel provides an effective method to communicate consumer requests for switched digital channels to the headend. TiVo believes this can be accomplished through a simple, standard technological method.

2. *The IP Backchannel Solution can be Attained Using Simple Methods and Well-Known Standards.*

In Exhibit F, TiVo proposes the key elements of an effective method that can be implemented quickly and relatively inexpensively. These elements comprise the core of the out-of-band communication solution. This proposal relies heavily on voluntary industry standards – proven solutions that can be implemented readily and with minimal

²⁷ See Preliminary Hearing Transcript, http://energycommerce.house.gov/Press_111/20100429/transcript.04.29.2010.cti.pdf at 47, <http://energycommerce.edgeboss.net/wmedia/energycommerce/2010.04.29.cti.wvx> at 1:13:20.

additional expense. TiVo's preference is to create the necessary detailed implementation specification jointly in cooperation with the cable industry, so as to take full advantage of the technical expertise of both parties. TiVo seeks to work with the cable industry to develop this proposal into a final, deployed solution for upstream signaling over an IP backchannel.

C. The IP Backchannel Solution can be Implemented Efficiently and Cost-Effectively.

Because the tools to implement an IP backchannel solution exist today, minimal additional technological development is required. TiVo believes the IP backchannel requirements will be less expensive than deploying tuning adapters to all CableCARD-reliant products that are otherwise well-supported.

The core investment required to implement the proposed IP backchannel solution would be the acquisition of a proxy server and related software to communicate the channel selection commands and addressing to each switched digital video headend. TiVo estimates the approximate cost for hardware and related software to support up to 25,000 UDCP consumers to be between \$10,000 - \$25,000.

By contrast, today's tuning adapter involves hardware costs plus related service costs. TiVo estimates the cost of a tuner adapter at approximately \$35-50. The cost of a truck roll to deliver and install the tuning adapter, including labor, travel time, and related costs, ranges between \$50-100.²⁸ At a cost of \$85 to \$150 per user, cable operators that

²⁸ As cable operators have informed the Commission, truck rolls impose economic and social costs in terms of labor, fuel costs, lost time for travel and missed appointments, consumer inconvenience, traffic congestion, and environmental pollution. *See Cablevision Waiver Petition.*

serve even a few hundred UDCP customers will save money by moving to an IP backchannel solution.²⁹

TiVo further believes that investments in equipment and knowledge used to implement the IP backchannel solution will reap savings for the implementation of the AllVid solution proposed in the NOI or future IP-based solutions. Communication from third party-supplied equipment back to the headend likely will be a requirement for an AllVid adapter or gateway. Enabling the adapter will require development of proper communication protocols and concurrent real-world experience with implementing them. The IP-based communications protocols suggested above, based on well-known industry standards, can lay the groundwork for adapter development and prove its feasibility, so as to help smooth the transition to the AllVid networked home environment.

In sum, the proposed out-of-band solution satisfies the needs of the cable industry, competitive manufacturers, and consumers. Subscribers will get access to all switched digital channels using a single product of their own choosing. Cable operators will get a less expensive alternative to the tuning adapter which will permit ready migration to switched digital services with little or no disruption to their subscribers. And competitors like TiVo will be able to market competitive navigation devices without the disadvantages of a separate operator-provided set-top box.

IV. The Commission Should Provide Consumers with Transparent, Parity Pricing for CableCARD and Competitively Available UDCPs.

In “Connecting America: The National Broadband Plan,” the Commission cited the importance to the competitive navigation device market, and to consumer welfare, of

²⁹ Even if no such savings were to be realized, switched digital techniques are implemented by operators so that they can sell additional programming. To the extent this method penalizes subscribers by reducing the availability of the channels for which they pay, the operator should bear the cost of an appropriate solution.

establishing fair and transparent pricing for CableCARD-reliant products and cable leased boxes. The Plan concluded that, to achieve the purposes of Section 629, proposed regulations should:

[e]stablish transparent pricing for CableCARDS and operator-leased set-top boxes. Consumers should see the appropriate CableCARD charge, whether they purchase a retail device or lease one from the operator, and *they should receive a comparable discount off packages that include the operator-leased set-top box if they choose to purchase one instead.*³⁰

TiVo applauds the Commission for recognizing that cable operator pricing and subsidies have deterred development of the market for competitive navigation devices. Section 629 would be meaningless without a level playing field on which competitive products can be fairly judged according to their merits. Without pricing information, and parity pricing between leased and owned products, Section 629's mandate will remain unfulfilled. Moreover, unless cable operators must subtract the reasonable costs of a cable-supplied box from the price of a bundled service and equipment offer, consumers who purchase competitive navigation devices will unfairly be overcharged for owning their own equipment. In addition, cable operators must be prohibited from imposing monthly connection fees, additional outlet fees, high definition service fees, or any other fees on UDCP users, above and beyond the CableCARD rental cost, unless they impose the same fee on users of leased devices. During a recent survey of CableCARD fees by major operators conducted by TiVo last month, we were quoted CableCARD prices of between \$0 and \$60 for a single CableCARD. The average CableCARD costs varied by operator between \$1.75 and \$3.57 for a single card.

³⁰ *Id.* at 52 (emphasis supplied).

Most cable services are sold to consumers in packages, which include programming services and an operator-supplied set-top box and remote. But if all consumers see from cable operators' promotional materials is a single package price for service with a cable-supplied box, then they will have no information by which to compare the costs and value of owning a UDCP instead. If consumers can easily learn the price of a CableCARD, and the amount of the discount they will receive off their monthly bill without cable-supplied equipment, competitive navigation device manufacturers will have a fair opportunity to market their products to cable customers. Indeed, the price of connecting a product through use of a CableCARD should not be a mystery for consumers to solve. Device pricing, and all alternatives, should be readily available information and posted on the operator's web site. To the extent that the Commission's rate regulations prevent an operator from charging a single price for CableCARDS across their nationwide footprint, TiVo proposes that the Commission amend its rules to permit operators to do so.

V. The Commission Should Ensure That CableCARD Support Issues Are Being Solved Before Granting Further Waivers

TiVo believes that the rule requiring cable operators to use CableCARDS in their leased devices plays an important if incomplete role in increasing operators' level of support for retail devices and has expressed its concerns about waivers becoming a slippery slope, as fewer devices are made to comply with the integration ban and operators rely less commonly on the "identical security function."³¹

Before granting any further waivers, the Commission should ensure that concrete steps are taken to eliminate the disparity in the subscriber experience for customers who

³¹ *In the Matter of Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, MB Dkt. No. 07-269, Comments of TiVo Inc. (July 29, 2009).

choose to use retail CableCARD products. Moreover, an operator should lose its waiver if it repeatedly violates the FCC's CableCARD rules. In SDV systems, waivers should not be entertained until a solution for direct access to SDV channels for broadband-enabled UDCPs has been developed and deployed. This will provide an economic incentive for the IP backchannel solution to be developed and deployed without delay.

VI. TiVo Supports The Commission's Proposal on Home Networking Interfaces

TiVo, Intel, and Motorola have filed petitions for waiver of the requirement to include IEEE 1394 interfaces on all leased set-top boxes.³² The Commission has proposed to change this rule, instead requiring Ethernet, Wi-Fi, USB 3.0, or IEEE 1394 with the manufacturer having their choice of interface. TiVo supports this rule change, which will accomplish the goals laid out in TiVo's petition for waiver.

VII. Conclusion

The Commission's plan to stop unjustified technological, economic and service-related discrimination against subscribers who buy multichannel video devices at retail is vital and timely. The goal of ending this discrimination and fulfilling the mandate of Section 629 is feasible in the near term and will lay a foundation for implementing the Commission's future set-top box proposals. TiVo requests that the Commission revise

³² *In the Matter of Request of Motorola Inc. for Waiver of 47 C.F.R. §76.640(b)(4), Implementation of Section 304 of the Telecommunications Act of 1996; Commercial Availability of Navigation Devices*, CSR-8251-Z, CS Dkt. No. 97-80, Request for Waiver (Nov. 25, 2009); *In the Matter of Intel Corporation Petition for Waiver of 47 C.F.R. §76.640(b)(4), Implementation of Section 304 of the Telecommunications Act of 1996; Commercial Availability of Navigation Devices*, CSR-8229-Z, CS Dkt. No. 97-80, Petition of Intel Corporation For Waiver of 47 C.F.R. § 76.640(b)(4) (Oct. 7, 2009); *In the Matter of TiVo Inc.'s Petition for Waiver of 47 C.F.R. §76.640(b)(4), Implementation of Section 304 of the Telecommunications Act of 1996; Commercial Availability of Navigation Devices*, CSR-8252-Z, CS Dkt. No. 97-80, Petition of TiVo Inc. For Clarification or Waiver of 47 C.F.R. § 76.640(b)(4) (Nov. 11, 2009).

its CableCARD rules effectively, and enforce them vigorously, in order to make this effort a success.

Respectfully submitted,

TIVO INC.

Matthew Zinn

Matthew Zinn
Senior Vice President, General Counsel,
Secretary & Chief Privacy Officer
2160 Gold Street
Alviso, CA 95002-2160
(408) 519-9131

Dated: June 14, 2010

Exhibit A
2010 Comments from www.tivocommunity.com

- I wanted 4 CableCARDS and my cable provider told me that: **“it was \$30 **per card** for the installation. It is bad enough they have to send a rep out in the first place, but this is totally ridiculous. I tried to protest, but no dice.”**

- **“I got my comcast M card on Saturday. The tech was there for five hours. In the end it was data entry errors that didn't get the new card activated and then deactivated the M card I already had. Ultimately they got both cards working. Today I got my comcast bill and it had **two \$8 charges for hd outlets.**”**

- **“Recently I purchased a TivoHD for a second HD TV and had without incident (amazing as that sounds) a M-card installed. Fine. However, **I notice my monthly bill increased \$14, \$7 for additional HD service and an additional \$7 for digital service. Why am I paying so much for an additional box that I bought? Is this the future? \$14 per HDTV. This sucks big time!**”**

- My cable provider told me: **“The card rate is the same as a digital box rate - depending on where you are, they are either \$5.00 or \$5.99 per month.”**

- I asked about CableCARDS and got this response from my cable company: **“Please be aware that a cable card does not allow you access to the guide, PPV or VOD that a digital box provides, nor does it allow access to HD channels that a DVR provides.”**

- **“[My operators] is starting to move their channels to SDV. No-one in Columbus knows what a Tuning Adapter is.”**

- **“I just spoke on the phone with a CSR who didn't know what an M-Card was.”**

- **“Trust me, it's virtually impossible to talk to a CSR who has a clue about Cablecards. [My operator] will have M-Cards in stock. I upgraded to a Tivo-HD in January. It took 3 truck rolls, but they got it working.”**

- **“I am looking to get a tivo premier, and I went to my local [cable operator office] to see if they have m-cards in stock. I was told they do not carry them at all.”**

- **“Just got a Premiere XL and had an appointment setup today for the CableCARD install. Rep called me 40 mins after he was supposed to be here saying that someone should have called me to reschedule as **the cards were back ordered and he had no idea when they'd be in.**”**

- **“In my area (Central NY) [my operator] is out of cable cards. They do not have a ETA on when they will get those cards.”**

Exhibit B
Petition for Reconsideration or Clarification of TiVo Inc. (July 27, 2009)



July 27, 2009

BY HAND DELIVERY

Marlene H. Dortch, Secretary
Federal Communications Commission
Office of the Secretary
c/o Natek, Inc., Inc.
236 Massachusetts Avenue, N.E., Suite 110
Washington, DC 20002

Re: File Nos. EB-07-SE-351, EB-07-SE-352

Dear Ms. Dortch:

Enclosed please find an original and four copies of the Petition for Reconsideration or Clarification of TiVo Inc. This Petition for Reconsideration is directed to the Commission's Order on Review, released June 26, 2009, which reversed in part *Oceanic Time Warner Cable, a subsidiary of Time Warner Cable, Inc.*, Forfeiture Order, 24 FCC Rcd 960 (Enf. Bur. 2009) et al.

If you have any questions, feel free to contact me.

Sincerely,

Matt Zinn

Enclosures

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

In the Matter of)	
)	
Oceanic Time Warner Cable, A subsidiary of Time Warner Cable, Inc.)	File Nos. EB-07-SE-351, EB-07-SE-352
)	
Oceanic Time Warner Cable, a division of Time Warner Cable, Inc. Oceanic Kauai Cable System)	NAL/Acct. Nos. 200832100074, 200932100001, 200932100002, 200932100003, 200932100008, 200932100022, and 200932100023
)	
Oceanic Time Warner Cable, a division of Time Warner Cable, Inc. Oceanic Oahu Central Cable System)	
)	
Cox Communications, Inc. Fairfax County, Virginia Cable System)	FRN Nos. 0018049841, 0016034050

PETITION FOR RECONSIDERATION OR CLARIFICATION OF TIVO INC.

July 27, 2009

SUMMARY

In the wording of a reversal of an enforcement action, the Commission has given the appearance of undermining the long-standing, and Congressionally-mandated policy of removing obstacles from the path of those consumers who choose competitive navigation devices. TiVo is directly and adversely affected by the Commission's *dictum* suggesting that cable operators can freely move to Switched Digital techniques without taking any measures to accommodate subscribers who have been using competitively sourced devices to view and record these channels.

Time Warner and Cox furnish Tuning Adapters to TiVo subscribers at no additional charge. A Tuning Adapter provides TiVo subscribers with access to the channels they reasonably expected to receive under the Plug and Play Agreement. Therefore, TiVo does not disagree with the Commission's decision to vacate the enforcement proceedings. TiVo strongly believes, however, that the Commission's unnecessary statements about support obligations for "one-way" and "two-way" programming and services, could be interpreted as disenfranchising hundreds of thousands of TiVo subscribers. TiVo seeks reconsideration of the Commission's Order, and clarification that operators who wish to employ new technologies to provide programming delivered on a per channel basis need to ensure that unaffiliated retail devices that are technically capable of receiving the programming can continue to receive those signals. If appropriate, the Commission should also initiate a new, notice and comment proceeding, to determine how new video distribution techniques, including

SDV, can be introduced in a manner that does not impair competitive navigation devices in violation of FCC rules and the important policy goals of Section 629.

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

In the Matter of)	
)	
Oceanic Time Warner Cable, A subsidiary of Time Warner Cable, Inc.)	File Nos. EB-07-SE-351, EB-07-SE-352
)	
Oceanic Time Warner Cable, a division of Time Warner Cable, Inc. Oceanic Kauai Cable System)	NAL/Acct. Nos. 200832100074, 200932100001, 200932100002, 200932100003, 200932100008, 200932100022, and 200932100023
)	
Oceanic Time Warner Cable, a division of Time Warner Cable, Inc. Oceanic Oahu Central Cable System)	
)	FRN Nos. 0018049841, 0016034050
Cox Communications, Inc. Fairfax County, Virginia Cable System)	

PETITION FOR RECONSIDERATION OR CLARIFICATION OF TIVO INC.

TiVo Inc. (“TiVo”), pursuant to 47 C.F.R. § 1.106, hereby petitions for reconsideration of the Order on Review in the above captioned proceeding adopted by the Commission on June 26, 2009 (“Order on Review”).¹ This Petition is TiVo’s first opportunity to be heard with respect to the FCC’s Order on Review, and its implications for support of competitive devices. As the FCC itself acknowledged at an earlier stage, TiVo and its subscribers are harmed by the outcome.² Hence TiVo is “adversely

¹ *In the Matter of Oceanic Time Warner Cable, a subsidiary of Time Warner Cable, Inc., Oceanic Time Warner Cable, a division of Time Warner Cable, Inc., Oceanic Kauai Cable System, Oceanic Time Warner Cable, a division of Time Warner Cable, Inc., Oceanic Oahu Central Cable System, Cox Communications, Inc., Fairfax County, Virginia Cable System*, File Nos. EB-07-SE-351, EB-07-SE-352, Order on Review (rel. June 26, 2009) (“Order on Review”).

² *In the Matter of Oceanic Time Warner Cable, A Division of Time Warner Cable, Inc. Oceanic Kauai Cable System*, File No. EB-07-SE-352, Forfeiture Order ¶ 13 (rel. Jan. 19, 2009) (“Forfeiture Order”) (“TWC prevented subscribers with UDCPs, such as ‘digital cable ready’ televisions and TiVo recorders, from viewing the switched linear channels that were already part of their subscription package without the use of a TWC-supplied set-top box, thus effectively impairing the use of those UDCPs within the affected cable system.”).

affected” and has standing under Section 106³ of the Commission’s rules to pursue this Petition.

I. INTRODUCTION AND BACKGROUND

In its reversal of an enforcement action, the Commission has gone much further than was necessary and, in doing so, has risked a significant change in a critical policy without benefit of or opportunity for comment by interested parties or the consuming public. Rather than simply overturn its enforcement action, the Commission went on, in the Order on Review, to pronounce a significant departure from its own policies, stating:⁴

Our UDCP rules were not intended to provide access to bi-directional services or to freeze all one-way cable programming services in perpetuity. CableCARD-equipped UDCP customers may continue to use their UDCPs to receive unidirectional programming services without an additional set-top box. Thus, we find that the migration of cable programming services to an SDV platform does not “prevent” the use of UDCP devices as that term is used in Section 76.1201. We emphasize, however, that while one-way cable programming may be converted to a two-way platform without violating our plug-and-play rules, these rules continue to require cable systems to provide any one-way programming in a format compatible with UDCP devices.⁵

With these words the Commission seems to have reversed its own prior interpretations of its regulations. It is imperative, to preserve competition, congressional intent, and appropriate process, for the Commission to reconsider this action.

³ 47 C.F.R. § 1.106 (2008).

⁴ Indeed, as of the date for this Petition to be timely filed, TiVo remains unable to obtain access to all filings in this adjudicatory proceeding, whose documents are not generally available for public comment. This in itself makes this proceeding a poor choice for changing policy or undercutting existing regulations.

⁵ Order on Review ¶ 11 (footnote omitted).

II. TIVO AND ITS SUBSCRIBERS HAVE RELIED ON THE FCC'S PLUG & PLAY REGULATIONS TO EFFECTUATE CONGRESS'S SECTION 629 MANDATE TO ASSURE SUPPORT, IN FCC REGULATIONS, FOR COMPETITIVE NAVIGATION DEVICES.

TiVo pioneered the Digital Video Recorder (“DVR”) category. Since introducing its first product in March 1999,⁶ “TiVo” has become synonymous with consumer empowerment with respect to broadcast and cable media. With the advent of HDTV programming over cable, however, TiVo and other competitive entrants faced the challenge of gaining access to cable HDTV programming – all of which FCC Encoding Rules⁷ allow to be recorded – via an interface that supports the HDTV format. The CableCARD, which grew out of the inter-industry “Plug & Play” recommendation, and associated Commission regulations, is such an interface.

In reliance on the suite of FCC regulations that *require* cable operators to support CableCARD-reliant devices,⁸ TiVo was able to ship its Series3 HD DVR in September 2006.⁹ The 2003 regulations, and the inter-industry recommendation that (with public comment) helped produce them, were driven by Congress’s direct mandate in Section

⁶ History of TiVo, <http://www.tivo.com/abouttivo/jobs/historyoftivo/>.

⁷ *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment*, CS Dkt. No. 97-80, PP Dkt. No. 00-67, Second Report and Order and Second Further Notice of Proposed Rulemaking (“Plug & Play Order”), Appx. B, at 50-59 (rel. Oct. 9, 2003), 47 C.F.R. §§ 76.1901-1908 (2008) (“Encoding Rules”).

⁸ *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment*, CS Dkt. No. 97-80, PP Dkt. No. 00-67, Second Report and Order and Second Further Notice of Proposed Rulemaking, Appx. B, at 42-59 (rel. Oct. 9, 2003), 47 C.F.R. §§ 15.38, 15.123, 76.602, 76.640, 76.1901-1908 (2008) (hereinafter the “Plug & Play regulations”).

⁹ <http://www.tivo.com/abouttivo/jobs/historyoftivo/>. Today, TiVo offers two CableCARD-equipped DVRs, the TiVo HD DVR and the TiVo HD XL DVR. See TiVo DVRs, <http://www.tivo.com/store/boxes.do>.

629 that FCC regulations must *assure* the commercial availability of competitive products that function directly and independently on MVPD systems.¹⁰

Despite the generally acknowledged superiority of TiVo's user interface,¹¹ the competitive DVR category has not flourished in the way Videocassette Recorders ("VCRs") did in the analog era. Instead of being a highly competitive product category that, like the VCR, was driven by competition to high volumes, better features, and ever-lower prices, the DVR category has largely drifted to domination by whichever MSO provides the service. This market failure has left consumers with no *competitive* choice except for TiVo and another more recent entrant. This is the *opposite* of the result that Congress, more than a decade ago, commanded the FCC to pursue in its regulations.

Yet now, without any opportunity for public comment, the Commission has issued an Order that can be read as stating that the *Carterfone*-type right to attach – the bedrock behind Section 629, the 1998 R&O,¹² and the Plug & Play Regulations – should be taken so literally as to be meaningless: that mere *attachment* is enough, irrespective of whether such attachment is useful to the consumer.

The Order on Review can be read as meaning that, so long as a single program – even one available by non-cable means – can be captured via a CableCARD, the cable subscription of a TiVo owner can be devalued by an MSO's resort to Switched Digital

¹⁰ See, e.g., *Comcast Corp. v. FCC*, 526 F.3d 763, 767 (D.C. Cir. 2008) (holding that the FCC's regulations implementing Section 629 should produce "lower prices, more choices, and the spurring of technological innovation").

¹¹ See, e.g., *David Pogue's Gadget List of 2008*, The New York Times, Aug. 7, 2008 ("Still the best DVR software and features on the planet. Subscribes to my favorite Web videos. When I'm away, I can program it from across the Internet."); Andy Ihnatko, *Competitors Prove TiVo At Tops Of Its game; Latest Device Another*, Chicago Sun-Times, Aug. 16, 2007; Mark Kellner, *New TiVo XL Offers More To Watch*, The Washington Times, Feb. 25, 2009.

¹² *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, CS Dkt. No. 97-80, Report and Order (rel. June 14, 1998) ("Navigation Devices Order").

transmission. The Order is silent as to the implications of this reading, particularly the question of what, if any, obligation does the MSO nevertheless have, under Section 629, to assure support of competitive navigation devices, and of consumers who have purchased them in good faith. To avoid leaving such fundamental questions about what the Plug & Play regulations now mean unanswered, the Commission should reconsider the Order on Review and, if deemed appropriate, initiate a new notice and comment proceeding to determine the reach of its Plug and Play regulations in the context of Switched Digital offerings.

III. SWITCHED DIGITAL PROGRAMMING IS NOT INTERACTIVE IN NATURE AND HAS BEEN, CAN BE, AND SHOULD BE MADE READILY AVAILABLE TO DEVICES SUCH AS TIVO DVRS.

Fundamentally, the Order on Review mischaracterizes Switched Digital Video (“SDV”), and thus has the effect of removing it from the purview of the Plug & Play regulations. The Plug and Play Agreement was supposed to provide *certainty* to manufacturers and consumers that UDCPs would receive all linear programming (i.e. programming sent on a per channel basis) provided by the cable operator.¹³ While the 2003 Plug & Play Order anticipated that cable services would need to evolve beyond the “one way” streaming of programming to consumers, the linear streaming of programs by Switched Digital techniques does not represent any such evolution or change. The SDV

¹³ See *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, CS Dkt. No. 97-80, Letter from Carl E. Vogel, President and CEO, Charter Communications, *et al*, to Michael K. Powell, Chairman, FCC (Dec. 19,2002) (“Cable/CE Letter”), Memorandum of Understanding Among Cable MSOs and Consumer Electronics Manufacturers (“MOU”) (signed by Charter Communications, Inc., Comcast Cable Communications, Inc., Cox Communications, Inc., Time Warner Cable, CSC Holdings, Inc., Insight Communications Company, L.P., Cable One, Inc., Advance/Newhouse Communications, Hitachi America, Ltd., JVC Americas Corp., Mitsubishi Digital Electronics America, Inc., Matsushita Electric Corp. of America Panasonic), Philips Consumer Electronics North America, Pioneer North America, Inc., Runco International, Inc., Samsung Electronics Corporation, Sharp Electronics Corporation, Sony Electronics, Inc., Thomson, Toshiba America Consumer Electronics, Inc., Yamaha Electronics Corporation, USA, and Zenith Electronics Corporation), at Section 3.4.

channels themselves are neither provided to subscribers nor billed to their accounts on an interactive (i.e. per program) basis. Consumers tune to SDV channels like any other broadcast channel. A UDCP is perfectly capable of fulfilling a subscriber's request to tune to the channel if only it is given the information on where to *find it* on the plant, especially if the program is already on the plant because other subscribers are also watching the same channel.¹⁴ However, that tuning information is currently not made available to UDCP devices. There is no need for the consumer to *order* the channel interactively. The consumer is simply tuning to one of the hundreds of linear broadcast channels for which the subscriber pays to be broadcast to the home. Streaming a linear program by this means does not change the program's category (must be recordable) with respect to the Encoding Rules.

To the user, the SDV channels appear to be like all the other channels in the subscribed broadcast package. The subscriber does not make any explicit interactive request. The programs are not presented to the user as unique services, and are not billed as such either. All SDV technology does is change *how* a Plug & Play (UDCP) device *finds* the program to receive. That TiVos and other devices designed pursuant to the Plug & Play regulations are inherently *capable* of receiving streamed programming sent by SDV¹⁵ is illustrated by the fact that, when aided by a Tuning Adapter provided by a cable operator, they can do so. Indeed, the Commission has recognized that TiVo and certain other UDCPs have Internet capability that allows upstream signaling.¹⁶ Such signaling is

¹⁴ The return path of a cable system does not require an Internet-enabled device to learn where to find a channel using SDV techniques.

¹⁵ See *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, Cable One, Inc.'s Request for Waiver of Section 76.1204(a)(1) of the Commission's Rules, CS Dkt. No. 97-80, CSR-8080-Z, Memorandum Opinion and Order, at 6 n.40.

¹⁶ See *id.* ("Devices like those designed by TiVo and Digeo, which achieve two-way communication using the Internet for upstream communications, have garnered consumer interest.").

all that is necessary for a TiVo device to request and locate the streamed programming. Yet the sweeping Order on Review neither considered nor discussed this fact, and neither TiVo nor any other third party was afforded any opportunity to build a record as to its significance as to the status of programming sent by SDV techniques.

IV. THE COMMISSION FAILED TO CONSIDER THE IMPACT OF ITS POLICY STATEMENTS ON ALL OF ITS PLUG & PLAY REGULATIONS, AS WELL AS ON ITS MANDATE TO EFFECTUATE SECTION 629.

The Commission observed that the SDV systems at issue in the Order on Review did not “prevent” MVPD subscribers from using CableCARD devices to connect with a SDV system because some unspecified number of unidirectional programming services were still unavailable.¹⁷ Taken to an extreme that the Commission could not have intended, this interpretation of “prevent” would suggest that an MVPD would comply with the Plug & Play regulations so long as there is *one* channel available to UDCP devices. This is inconsistent with the clear intent and prior interpretation of Commission regulations.

A. Section 76.1201

Section 76.1201 embodies the *Carterfone* principle that consumer choice leads to competition, innovation and a better consumer experience.¹⁸ In the 1998 Report and Order, the Commission observed:

The competitive market for consumer equipment in the telephone context provides the model of a market we have sought to emulate in this proceeding. Previously, consumers leased telephones from their service provider and no marketplace existed for those wishing to purchase their own phone. The *Carterfone* decision allowed consumers to connect [customer premises equipment] to the telephone network if the connections did not cause harm. As a result of *Carterfone* and other

¹⁷ Order on Review ¶ 11.

¹⁸ Navigation Devices Order, ¶ 11 (footnote omitted).

Commission actions, ownership of telephones moved from the network operator to the consumer. As a result, the choice of features and functions incorporated into a telephone has increased substantially, while the cost of equipment has decreased.¹⁹

The Commission applied the *Carterfone* “right to attach” to navigation devices in aid of consumer choice.²⁰ In promulgating § 76.1201, the Commission declared:

Subscribers have the right to attach any compatible navigation device to a multichannel video programming system. We conclude that the core requirement, to make possible the commercial availability of equipment to MVPD subscribers, is similar to the *Carterfone* principle adopted by the Commission in the telephone environment. The *Carterfone* “right to attach” principle is that devices that do not adversely affect the network may be attached to the network.

In the 1998 Report and Order, the Commission confirmed that the “right to attach” must, in the context of Section 629, include the right to receive programming. It said that Section 629’s “important goals” would not be achieved if MVPDs retained “the ability to limit substantially consumer access to content, applications, and other services.”²¹ The Commission identified continued consumer access to programs and services, through attached competitive devices, as an important goal, and said it would continue to “examine the circumstances where commercial availability does not evolve and *access to programming and services is encumbered.*”²²

Accordingly, one challenge for competitive entrants and for the Commission has been to make the “right to attach” meaningful – for competitive devices not only to be *attached*, but to *function properly* for consumers. This goal has been needlessly undermined in the Order on Review. For example, the Commission quotes an industry

¹⁹ *Id.*

²⁰ *Id.* ¶ 29 (“We agree with Time Warner that the marketplace, not the MVPD, should determine the price and features of navigation devices available to subscribers.”).

²¹ *Id.* ¶ 8.

²² *Id.* ¶ 18 (emphasis added).

publication for the proposition that “CableCARD-based retail devices have proven to be very unpopular in the market,”²³ without also noting the Commission’s *own* prior findings, which were cited to and adopted by the Court of Appeals, that cable MSOs have repeatedly failed in their responsibility to provide adequate support for CableCARD operation.²⁴ To remain faithful to its congressional mandate and to its own declared objectives and legal positions, the Commission should reaffirm, rather than water down, the commitment it made when it adopted its suite of Plug & Play regulations: That its regulations should be understood as providing the necessary assurance and certainty for consumer electronics manufacturers to invest in competitive devices, and for consumers to buy them with confidence.²⁵ To interpret Section 1201 so that “attach” means only “just attach, whether or not the result makes the device at all useful,” would significantly undermine what the Congress has commanded, and what the Commission and the courts have required over the past decade.

B. Section 76.640

The Commission took into account the development of technologies like SDV when it issued the Plug and Play Order in 2003. In fact, the Commission based its decision to adopt § 76.640 on its belief that the regulation would “further the Commission’s mandate to ensure the commercial availability of navigation devices and facilitate the adoption and implementation of both unidirectional digital cable products and the POD-Host interface platform.”²⁶ At the time, several commenters, including

²³ Order on Review n.43.

²⁴ *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, CS Dkt. No. 97-80, Second Report and Order, ¶ 28 (rel. Mar. 17, 2005); *Charter Communications, Inc. v. FCC*, 460 F.3d 31, 40-41 (D.C. Cir. 2006).

²⁵ Plug & Play Order ¶ 4 (“[I]f portable devices that can be marketed nationally are to be created, some technical standardization among MVPDs is needed.”).

²⁶ *Id.* ¶ 19.

TiVo, expressed concerns that the specific technical standards incorporated into § 76.640 would freeze technology in place and harm innovation.²⁷ To alleviate these concerns, the Commission decided to create a “baseline compatibility standard” that would “ensure [. . .] the commercial availability of unidirectional digital cable televisions and products.”²⁸ In fact, “to ensure that innovation is not stifled,” the Commission described an administrative process in which it would conduct periodic reviews of the technical requirements in § 76.640 and consider whether any of the requirements “should be amended or sunset in light of technological changes or other factors.”²⁹ Despite this consistent support for Section 76.640, the Order on Review can be read as failing to require that SDV or future services should be offered in ways compliant with this regulation.

For example, the Commission cited the failure of SDV techniques to comply with § 76.640 as a reason to conclude that SDV techniques are not covered by this regulation. But, as is noted above, Switched Digital is applied to linear, “one-way” programming. For UDCP users, only the ability to *locate the channel* requires some upstream signal. As is noted below, this can easily be accommodated in specifications. Yet, SDV techniques were not designed to achieve this objective:

- 76.640(b)(1)(i): Digital Cable Network Interface Standard (SCTE 40 2003) – SDV systems do not provide description information in an out-of-band forward data channel for scrambled services. This practice violates § 76.640(b)(1)(i), which references SCTE 40 2003, which states: “[w]hen one or more scrambled services are offered on the cable system, System and Service Information for all services (both scrambled and in-the-clear) shall be carried in an out-of-band Forward Data Channel.”³⁰

²⁷ *Id.* ¶ 29 & n.75.

²⁸ *Id.* ¶ 29.

²⁹ *Id.*

³⁰ ANSI/SCTE 40 2003, Digital Cable Network Interface Standard, at 25 (2003).

- 76.640(b)(1)(iv): Program and System Information Protocol for Terrestrial Broadcast and Cable (ATSC A/65B) – If an MVPD places an unencrypted service on an SDV system, it must comply with § 76.640(b)(1)(iv), which requires that the technical information needed for a navigation device to select and display the unencrypted service must be provided in ATSC A/65B format. In an SDV system, the in-band data is dynamic and could change constantly, but because MVPDs have thus far not shared sufficient information with UDCP manufacturers, it is unknown whether navigation devices can be guaranteed to receive the service.
- 76.640(b)(1)(v)(B): Service Information Delivered Out-of-Band for Digital Cable Television (SCTE 65 2002) – If an MVPD places an encrypted service on an SDV system, it must comply with § 76.640(b)(1)(v)(B) which, like § 76.640(b)(1)(iv), requires the technical information to select and display the encrypted service. The dynamic nature of SDV requires that the technical information be updated frequently. Without an MVPD-supplied tuning adapter, a UDCP cannot be assured that the information is valid.

The Order on Review can be read as meaning that § 76.640(b) applies only to “services” that MVPDs decide to “offer” to a unidirectional host. According to the Order on Review, programming channels are such “services” that can arbitrarily be denied to subscribers, even though the result is to deny access to programming for which the subscriber has paid. This reading goes too far, and needlessly reverses an appropriate finding of the Enforcement Bureau that the Commission’s 2003 Plug and Play regulations could not be interpreted as exempting from regulation “*services* that consumers traditionally experienced as one-way services.”³¹

If permitted to stand, this *dictum* by the Commission would undermine the intention of the Unidirectional Plug and Play Agreement, on which the Commission relied in the Plug and Play Order, to provide *certainty* to consumer electronics companies to invest in the development and manufacture of devices that received access to *all* analog and digital cable services delivered in the clear or scrambled.³²

³¹ Forfeiture Order ¶ 21.

³² In presenting the agreement and the proposed regulations to the Commission, the cable industry and the consumer electronics industry trade associations and member companies said: “When

V. THE COMMISSION'S ORDER ON REVIEW INVITES CABLE MSOs TO RESTRAIN INTERNET-BASED COMPETITION.

Although nominally “unidirectional” in terms of *ordering cable services*, TiVo products and other UDCP devices actually contain upstream signaling capabilities which, in addition to being potentially harnessed via the provision of Tuning Adapters, also operate today to order, stream, and download programming over the Internet. Increasingly, similar features are being built into DTV receivers.³³ The Internet-based ability to order and receive on-demand and other content makes TiVo and competitive products potentially more competitive with MSO-furnished DVRs – *provided* that these products’ basic capacity to furnish cable subscribers with the linear per channel programming for which they have paid, and which they reasonably expect to receive, is not undermined.

A. The Order On Review Could Be Read As An Invitation To Undermine Internet-Based Device And Programming Competition.

Confirming the competitive potential of Internet-enabled UDCP products, TiVo and the leading consumer electronics retailer Best Buy recently announced a major partnership to promote these capabilities to the consuming public.³⁴ The Order on Review, however, seemingly would permit cable MSOs to cut off this competitive, retail

implemented, this agreement will provide the certainty the cable and CE industries need to build products and develop services to spur the digital transition, while preserving the ability of both industries to create innovative products and services on a timely basis in the rapidly-changing digital environment.” *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment*, CS Dkt. No. 97-80, PP Dkt. No. 00-67, Letter from Gary Shapiro, President and CEO to Michael Powell, Chairman, FCC (Dec. 19, 2002).

³³ See, e.g., Matthew Panton, *Viera Cast First Impressions: Panasonic's Version of WebTV*, June 19, 2008, http://news.cnet.com/8301-17938_105-9972024-1.html (describing several television manufacturers' implementations of Internet connectivity, including streaming video); David Katzmaier, *Yahoo Widgets hands-on review*, CNET, April 14, 2009, http://news.cnet.com/8301-17938_105-10217972-1.html (similar); Michael Juliano, *Hands-on review: YouTube on your TV*, CNET, July 24, 2009, http://news.cnet.com/8301-17938_105-10291785-1.html (describing LG television capable of directly streaming Internet video from YouTube).

³⁴ Brad Stone, *Best Buy and TiVo are Forming an Alliance*, New York Times, July 9, 2009.

competition, just as it emerges, by cutting off access, by these competitive devices, to the core cable programs for which subscribers pay. While TiVo fully expects cable operators to continue to provide Tuning Adapters to subscribers at no additional charge, the specter of linear programming being denied to TiVo devices that are technically capable of receiving that programming flies in the face of the Section 629 mandate. It simply cannot be left up to the discretion of an MVPD to choose to provide the programming to a competitive navigation device.

B. The Order On Review Erroneously Assumes That All Future Competition Will Come From tru2way Devices Whose Value, Feasibility, And Support Are Unproven And That Cable Operators Are Not Obligated To Support.

There is a sense in the Order on Review of unwarranted faith in the pro-competitive impact of tru2way devices. A 2009 article is cited to the effect that bi-directional devices are “beginning to be introduced in the marketplace.”³⁵ At this point, the “marketplace” for retail bi-directional devices based on tru2way technology is diminutive and there is no basis to make any assumptions about its growth. Tru2way technology is not being adopted by any MVPDs other than the six largest cable operators. Any tru2way retail navigation device, therefore, will not have access to two-way programming provided by smaller cable operators, much less Verizon and AT&T. Hence, tru2way retail devices will not be geographically portable or even portable among providers in the same market. The FCC has no way to know whether this will continue to be the case. Yet, in a mobile society, few consumers will purchase a navigation device that works only in limited markets with certain operators.

³⁵ Order on Review ¶ 14. To date, Panasonic has introduced two tru2way televisions, and they are only available in three metropolitan areas on the Comcast network. See Todd Spangler, *Operators to Miss Tru2way Deadline*, Multichannel News, June 30, 2009, http://www.multichannel.com/article/307206-Operators_To_Miss_Trु2way_Deadline.php.

Moreover, while tru2way may be appropriate for operator-supplied boxes, nothing in the record shows, and no regulation requires, that this technology will be practical or technically sufficient for *competitive* set-top boxes. The technical provisions of tru2way and the additional terms that are in effect via CableLabs licensing agreements curtail the freedom of CE manufacturers to design innovative competitive boxes, *inter alia*, by permitting cable operators to dictate the user interface of the devices.³⁶ Without differentiation in user interfaces and integration of cable content with broadband and other video choices, TiVo believes that consumers will have little reason to purchase a retail device that looks and functions exactly the same as the device it can lease from a cable operator. The Commission should not rely on press reports and promises about a potential market to justify the impairment of devices used by hundreds of thousands of real live consumers in the existing market – many of whom filed complaints with the Commission that led to the enforcement orders at issue.³⁷

³⁶ See *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between cable Systems and Consumer Electronics Equipment*, CS Dkt. No. 97-80, PP Dkt. No. 00-67, Comments of TiVo Inc (Aug. 24, 2007).

³⁷ It seems particularly inappropriate for the Commission to criticize the demand for UDCPs when, despite years of FCC findings of inadequate support, and three D.C. Circuit opinions affirming the common reliance requirements of Section 76.1204(a)(1), it still takes, on average, multiple single trips for a cable installer to properly install a CableCARD in a competitive device. See *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, CS Dkt. No. 97-80, Letter from Neal M. Goldberg, Vice President and General Counsel, National Cable and Telecommunications Association, to Marlene H. Dortch, Secretary, FCC at 1 (June 26, 2009). Installation problems continue to represent a meaningful obstacle to the success of *any* competitive device whether one-way or two-way.

VI. THE ORDER CANNOT BE RECONCILED WITH THE SECTION 629 MANDATE.

Section 629 of the Telecommunications Act of 1996 was a direct mandate from the Congress to the Commission to adopt regulations to *assure* navigation device competition.³⁸ Accordingly, in adopting regulations the Commission said, “the overarching goal of this proceeding will be to assure competition in the availability of set-top boxes and other [customer premises equipment].”³⁹ The Commission’s Order failed entirely to balance this mandate against the purported benefits of SDV techniques, or to seek any balanced outcome.

In the Order on Review, the Commission observed that SDV techniques can save bandwidth for other desired uses, but is silent on how to balance such savings against the costs to the consuming public, and against the costs of available alternatives, such as transitioning to all-digital transmission, which could entail a much greater saving. The Commission should give more weight to a growing chorus of consumer frustration about the inability to use competitive retail navigation devices to receive cable programming that Section 629 was supposed to rectify.⁴⁰

³⁸ See 47 U.S.C. § 549(a).

³⁹ *Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, CS Docket No. 97-80, Notice of Proposed Rule Making ¶ 3 (rel. Feb. 20, 1997).

⁴⁰ In recent months, numerous lawsuits have been filed against cable operators alleging anticompetitive behavior related to the inability of customers to use their choice of set-top boxes to receive premium channels and services. See, e.g., Mike Robuck, *West Virginia Attorney General Sues Comcast*, CedMagazine.com, July 06, 2009, <http://www.cedmagazine.com/News-West-Virginia-sues-Comcast-070609.aspx>; Mike Robuck, *Alabama Woman Sues Comcast Over Set-top Box Lease*, CedMagazine.com, June 11, 2009, <http://www.cedmagazine.com/News-Alabama-woman-sues-Comcast-set-top-lease-061109.aspx>; *In re Set-Top Cable Television Box Antitrust Litigation*, 589 F.Supp.2d 1379 (U.S.Jud.Pan.Mult.Lit. Dec. 12, 2008) (consolidating complaints filed by consumers in California, Kansas, Missouri, and New York). Irrespective of their merits, these complaints represent consumer frustration at the lack of choice in competitive navigation devices.

The Commission's Order on Review references Section 629 twice, but does not consider the impact of its ruling on the Section 629 mandate.⁴¹ On reconsideration, the Commission should make clear that SDV and future technologies cannot be used to skirt the commercial availability mandate of Section 629.

In enacting Section 629, Congress recognized the paramount importance of consumer choice and competition in both the consumer electronics and program content arenas when it instructed the Commission to "adopt regulations to assure the commercial availability" of navigation devices.⁴² Congress clearly intended to break the MVPDs' hold on navigation devices by helping to ensure that "consumers are not forced to purchase or lease a specific, proprietary converter box . . . from the cable system or network operator."⁴³ Congress's belief that "[c]ompetition in the manufacturing and distribution of consumer devices has always led to innovation, lower prices and higher quality" provided the foundation for the policy of unfettered access to MVPD systems and Section 629.⁴⁴

Congress further instructed the Commission to act "in consultation with appropriate industry standard-setting organizations [to] adopt regulations to assure commercial availability . . . from manufacturers, retailers, and other vendors not affiliated with any multichannel video programming distributor."⁴⁵ Thus, Congress expected the development of standard, interoperable technological solutions to supplant the varying, proprietary systems put in place by MVPDs. The Commission itself described the

⁴¹ Order on Review ¶¶ 5, 9.

⁴² 47 U.S.C. § 549(a); Forfeiture Order ¶ 2 ("Congress and the Commission have long recognized the importance of allowing consumers the freedom to purchase their own navigation devices from sources other than their cable operator, satellite provider, or other multichannel video programming distributor.").

⁴³ Joint Explanatory Statement of the Committee of Conference, S. Conf. Rep. 104-230, at 181 (1996).

⁴⁴ H.R. Rep. No. 104-204, at 112 (1995).

⁴⁵ 47 U.S.C. § 549(a).

Section 629 mandate as “broad” and as requiring “the Commission to assure the commercial availability of navigation devices – meaning that the Commission must persist in its efforts until commercial availability is achieved.”⁴⁶

Previously, the Commission left little doubt as to the breadth of Section 629, including statements that Section 629 “applies to *any* type of equipment used to access MVPD programming and services”⁴⁷ and that the intention of Section 629 is “to result in the widest possible variety of navigation devices being commercially available to the consumer.”⁴⁸ In particular, the Commission left little doubt that new MVPD technology platforms like SDV fall under the ambit of Section 629 when it recognized “[t]he expansive nature of the language of Section 629 is a recognition that the future convergence of various types of equipment and services may result in technical innovations not foreseeable at this time.”⁴⁹

VII. THE TUNING ADAPTER PROVIDES A REASONABLE SOLUTION TO ENABLE THE USE OF SWITCHED DIGITAL TECHNOLOGY IN A MANNER CONSISTENT WITH SECTION 629.

Rather than seeking to have operators cease the use of SDV techniques or face forfeitures, TiVo reached an agreement with the NCTA under which cable operators deploying switched digital would provide TiVo subscribers with Tuning Adapters at no additional cost, to ensure that TiVo subscribers would continue to receive per channel programming delivered using SDV techniques.⁵⁰ TiVo believes that the provision of a Tuning Adapter at *no additional cost* is a reasonable, practical solution to ensure that

⁴⁶ Plug & Play Order ¶ 46.

⁴⁷ *Id.* (emphasis added).

⁴⁸ Navigation Devices Order ¶ 26.

⁴⁹ *Id.*

⁵⁰ Press Release, *NCTA AND TIVO ANNOUNCE SWITCHED DIGITAL SOLUTION FOR HD DVRs* (Nov. 26, 2007), <http://www.tivo.com/abouttivo/pressroom/pressreleases/2007/NCTAANDTIVOANNOUNCESWITCHEDDIGITALSOLUTIONFORHDDVRs.html>.

existing unaffiliated retail navigation devices that are capable of receiving streamed programming can continue to receive such programming delivered via SDV in compliance with FCC rules.

The requirement that there be *no additional cost* to use the Tuning Adapter is fundamental to the Tuning Adapter remaining an acceptable solution under FCC rules. The Tuning Adapter essentially is a modified set-top box that provides two-way signaling. This obviously is an imperfect solution for all parties. It is imperfect for TiVo and consumers because it requires the subscriber to use operator-supplied equipment to get SDV signals – which is what Section 629 was designed to avoid. It is imperfect for the operator because there is a cost to purchase and deploy the tuning adapter (which is presumably far outweighed by benefits of deploying SDV technology). If operators were to charge for a subscriber for providing a Tuning Adapter so that he or she could view the programming furnished as part of the subscription, the conflict of the Commission’s action with Section 629 would become violent, as it would make it uneconomic for TiVo subscribers to continue to pay to use their retail navigation device, plus the cost of a Tuning Adapter, versus simply renting an operator supplied set-top box.⁵¹

In the case of future technologies that operators wish to deploy, operators need to ensure that unaffiliated retail navigation devices can continue to receive the signals using the new technology *if those retail devices have the core technical capability to do so*. Operators need to keep their obligations to comply with FCC rules in mind when implementing new technology to ensure that unaffiliated retail devices can continue to receive those signals, subject to the technical capability of the device. Taking these

⁵¹ Thus, provision of the Tuning Adapter should be viewed as part and parcel of the service modification made by the MSO when saving itself money and bandwidth by adopting an SDV technique.

simple steps will not only facilitate competitive entry; it will also preserve and enhance the entry that has occurred, because it will preserve the core ability to receive “one way” cable programming in products whose Internet-based “two-way” competitive potential is being continually and dramatically enhanced. Therefore, in taking these steps the Commission will also be facilitating competition between and among MVPDs and Internet providers, as well as fulfilling its mandate to assure, in its regulations, the competitive commercial availability of navigation devices.

VIII. THE COMMISSION SHOULD ASSESS THE POLICY IMPLICATIONS OF THE ORDER ON REVIEW IN A NOTICE AND COMMENT PROCEEDING.

The Order on Review may be viewed by cable operators as announcing a new policy contrary to previous interpretations of the Congressional mandate and FCC regulations without any opportunity for public comment. Therefore, at this point, the Commission should step back and assess the implications of the Order on Review in a full notice and comment proceeding.

Both judicial precedent and Commission policy favor rulemaking over *ad hoc* adjudication as a means of announcing a new general rule governing future conduct.⁵² Moreover, the Administrative Procedure Act’s (“APA”) public notice and comment

⁵² See *Community Television of Southern California v. Gottfried*, 459 U.S. 498, 511 (1983) (“rulemaking is generally a ‘better, fairer, and more effective’ method of implementing a new industry-wide policy”); *NLRB v. Wyman-Gordon Co.*, 394 U.S. 759, 764 (1969) (“The rule-making provisions of [the APA], which the Board would avoid, were designed to assure fairness and mature consideration of rules of general application.”); *Pfaff v. United States Dept. of Hous.*, 88 F.3d 739, 748 (9th Cir. 1996) (“The disadvantage to adjudicative procedures is the lack of notice they provide to those subject to the agency’s authority.”); see also *In re NOS Communications, Inc. and Affinity Network, Inc. Apparent Liability for Forfeiture*, Notice of Apparent Liability for Forfeiture, File No. EB-00-TC-005, Dissenting Statement of Commissioner Harold Furchtgott-Roth, available at <http://www.fcc.gov/eb/Orders/2001/fcc01113ds.html>.

procedures (or comparable procedures for participation by affected industries) “may not be avoided by the process of making rules in the course of adjudicatory proceedings.”⁵³

As described above, the Order’s announcement that “the migration of cable programming services to an SDV platform does not ‘prevent’ the use of UDCP devices” is at the very least a policy innovation, as is the statement that “technical standards incorporated by reference into that rule do not apply to two-way services like SDV.”⁵⁴ These statements have profound implications for future enforcement of the Commission’s Plug & Play regulations. An agency statement that is “inconsistent with” an existing regulation or “effects a substantive change” in a regulation is a legislative rule for which public notice and opportunity for comment are required.⁵⁵ In *U.S. Telecom Association v. FCC*, the Court of Appeals found that an order purporting to redefine the term “same location” with respect to telephone number portability in fact created a massive expansion of portability requirements that was inconsistent with the prior rule.⁵⁶ The Court held that the purported interpretation was in fact a new legislative rule requiring a public comment period.⁵⁷

IX. CONCLUSION

In light of these operators having agreed to provide Tuning Adapters to affected TiVo subscribers at no additional cost, TiVo has no objection to the Commission’s decision to vacate the NALs relating to Time Warner’s and Cox’s implementation of SDV. Rather than stop there, however, the Commission unnecessarily has made statements about the migration of cable programming to a two-way platform, which

⁵³ *NLRB v. Wyman-Gordon*, 394 U.S. at 764.

⁵⁴ Order On Review ¶ 12.

⁵⁵ *U.S. Telecom Ass’n v. FCC*, 400 F.3d 29, 35 (D.C. Cir. 2005).

⁵⁶ 400 F.3d at 35.

⁵⁷ *Id.* at 30.

could be interpreted as backing away from its commitment to a robust market for competitive navigation devices and unintentionally disenfranchising hundreds of thousands of TiVo subscribers contrary to Section 629.

Accordingly, TiVo seeks reconsideration of the Commission's Order on Review and clarification that operators who wish to employ new technologies to provide programming delivered on a per channel basis need to ensure that competitive retail devices can continue to receive those signals if such devices are technically capable of receiving those signals. Whether in this proceeding, but more likely in a new notice and comment proceeding, the Commission should determine how new video distribution techniques, including SDV, can be introduced in a manner that does not impair competitive navigation devices in violation of FCC rules and the important policy goals of Section 629.

Respectfully submitted,

TIVO INC.

A handwritten signature in black ink, appearing to read "Matthew Zinn" with a flourish at the end.

Matthew Zinn

Senior Vice President, General Counsel,
Secretary & Chief Privacy Officer
2160 Gold Street
Alviso, CA 95002-2160
(408) 519-9131

Dated: July 27, 2009



CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing **“PETITION FOR RECONSIDERATION OR CLARIFICATION OF TIVO INC.”** was served on

July 27, 2009 via overnight delivery on the following:

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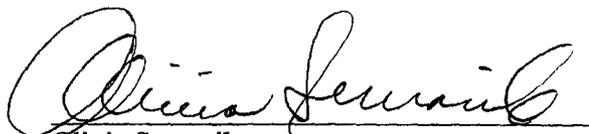

Olivia Semanik

Exhibit C
Ex Parte Letter of Feb. 17, 2010



Ms. Marlene Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: NBP Public Notice #27, GN Docket No. 09-47,
GN Docket No. 09-51, GN Docket No. 09-137, CS Docket No. 97-80

Dear Ms. Dortch,

TiVo files these *ex parte* comments with respect to NBP Public Notice #27 and the above-referenced proceedings. Reply comments suggest that providing access to cable programming and associated guide metadata would, *inter alia*, result in “dismantling” the cable business model, jeopardize security of MVPD services, and exceed the Commission’s statutory authority. TiVo disagrees strongly with each of these propositions, and believes the Commission should update its rules to provide consumers with a real choice of retail MVPD devices without further delay.

It is imperative that, on the eve of a National Broadband Plan, with the completion of the DTV Transition, and with the benefit of more than 17 years of experience, public notices, and public comment, the Commission now proceed expeditiously to address the key, unfinished business in achieving retail device competition for MVPD services. From TiVo’s perspective, this includes finally achieving, in regulations, *assurances* that: (1) CableCARDS are supported by all operators as fully as the Commission has intended; (2) Switched Digital and future IP-delivered programming can be received by competitive retail devices via simple upstream signaling methods; and (3) competitive retail devices are provided with access to guide metadata to enable consumers to access cable content, on-demand content, Internet content, recorded content, and more, in a single device with a single, unified user interface.

The Commission Needs To Address “Switched Digital” Technologies Expeditiously.

More and more cable systems are implementing switched digital video technology (“SDV”). At the end of 2009, U.S. cable operators together deployed SDV in around 35 million homes compared to around 25 million at the end of 2008. Various industry sources predict that deployment of SDV may reach up to 90 million homes by the end of 2012.¹ It is reasonable to foresee that the majority of, if not all, video programming will be SDV in the not too distant

¹ Zacks Equity Research, “Switched Digital Video is Thriving” (February 9, 2010), <http://finance.yahoo.com/news/Switched-Digital-Video-is-zacks-3934599275.html?x=0&.v=1>.

future.² In the absence of Commission action guaranteeing access by retail devices to switched digital programming channels, there will be absolutely no meaning to the FCC's rules implementing Section 629. The only way for competitive (*i.e.*, non-tru2way) retail devices to receive switched digital programming channels today is by use of a modified cable-supplied set-top box (known as a tuning adapter). Use of a cable-supplied set-top box to receive cable programming is the very antithesis of what a competitive set-top box policy is designed to achieve. This issue is so critical that without immediate FCC action, no market for competitive video devices can emerge – regardless of anything else the Commission does to advance competitive navigation devices.

In an open market, which the NCTA purports to favor, consumers can make choices as to the programming they wish to pay for and receive. If consumers are invited to pay for a programming package, but are denied access to programs in the package for which they pay, the market is neither open nor viable. Yet this is the “switched digital” scenario that the NCTA and cable operators have advocated that the Commission accept as fulfilling the mandate of Section 629 to assure a retail market for competitive navigation devices.³ NCTA also criticizes CableCARDs, and the retail devices that they should support, as wasteful investments.⁴ Yet NCTA would have the Commission adhere rigidly to a 2002 conception of a “one-way” device, rather than embrace secure and simple updates that would allow CableCARD-supported competitive products, such as TiVo DVRs, to continue to offer consumers convenient access to the programming for which they pay.

It is cable operators who have moved to the switched digital techniques that would deny consumers the right to make market-based decisions to acquire and view programming. Since this *change* in the terms under which cable programming was offered to CableCARD-reliant

² Jeff Baumgartner, *Comcast Forges ‘Excalibur’ for IPTV*, Light Reading (Oct. 28, 2009), http://www.lightreading.com/document.asp?doc_id=183740&site=cdn (describing Excalibur as an extension of the use of Comcast's existing IP platform to deliver IP video); Todd Spangler, *Assessing Cable's IPTV Future*, Multichannel News, Sept 25, 2009 (“There's now an expectation that cable providers will, at some point in the future, deliver all video services over IP.”); Comments of Motorola, Inc. NBP Public Notice #27 (filed Dec. 22, 2009) (“IP is the next stage in the evolution of the cable network. Some subscription video providers already distribute some or all of their programming using IP-based technologies, and traditional cable operators are exploring moving in that direction as well.”).

³ See, e.g., Time Warner Cable Opposition to Petition For Reconsideration or Clarification of TiVo Inc. at 24 (Aug. 11, 2009); Cox Communications, Inc. Opposition to Petition For Reconsideration at 13-16 (Aug. 11, 2009); *In the Matter of Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, MB Docket No. 07-269, Further Reply Comments of The National Cable & Telecommunications Association at 13 (Aug. 28, 2009).

⁴ NCTA Reply Comments at 25 & n.40. The cost of including a CableCARD slot is indeed one of the most expensive technology elements for navigation devices. At a time when set-top boxes with embedded security can be obtained for \$35-50, the Commission should investigate the reason for this expense and why the price has not decreased given the millions of navigation devices using CableCARDs.

devices in 2003 was initiated by cable operators, they should not be averse to the adaptations that would allow the competitive device market to keep pace.⁵ Doing so will not interfere with the manner in which switched channels are presented to the subscriber, as they are organized by the cable operator and programmers.

TiVo has proposed the use of broadband signaling, as in the “TV Everywhere” service being deployed by major cable operators, to provide upstream signaling to cable headends, so that owners of competitive retail cable devices can similarly signal upstream *to receive the programs for which they pay* without using an operator-supplied set-top box. The absence of the ability to make simple and secure upstream signaling requests threatens the viability of the only market for retail navigation devices that exists today.⁶ The cable industry’s response – that allowing users of DFAST-licensed, CableCARD-reliant devices such as TiVos to make such requests would be technically “incompatible” with their systems unless tru2way were deployed – is no less an evasion than was the Bell System’s claim that competitive telephones would be, *ipso facto*, incompatible with system security.⁷

The simple technical fact is that TiVo retail DVRs are capable of receiving SDV programming if provided with an IP return path to the headend. The SDV equipment used by most digital cable operators is designed to accept IP-based signaling, which would allow TiVo devices to signal their request to view an SDV channel to the headend equipment. Indeed, where a cable operator has been open to working with TiVo on this approach, it has been accomplished *without* any such extraordinary reconfiguration of headend equipment.⁸

As the Commission has repeatedly recognized, the mandate of Section 629 is broad. It requires the Commission to assure the commercial availability of navigation devices – meaning that the Commission must persist in its efforts until commercial availability is

⁵ Requiring operators to provide SDV to retail devices that are technically capable of receiving them does not “freeze” cable innovation or preclude the use of SDV or other technology. TiVo encourages the use of IP-based transmission techniques. We simply need operator support for upstream signaling via IP.

⁶ See Petition for Reconsideration or Clarification of TiVo Inc., File Nos. EB-07-SE-351, EB-SE-352 (July 27, 2009).

⁷ See, e.g., Time Warner Cable Opposition to Petition For Reconsideration or Clarification of TiVo Inc. at 24 (Aug. 11, 2009).

⁸ Jeff Baumgartner, *RCN Makes TiVo Its Dominant DVR*, Light Reading (Aug. 4, 2009), http://www.lightreading.com/document.asp?doc_id=180071&site=cdn. (“Earlier this year, SeaChange and TiVo forged a deal that would allow one-way TiVo DVRs with CableCARD slots to run cable VoD applications *without* supporting the CableLabs -specified tru2way platform. **Instead, the Internet connection on the TiVo box will serve as the return path and interface with the SeaChange VoD system.** Cable VoD titles, meanwhile, are tied into the TiVo user interface (and search engine) using the DVR’s Java-based HME (Home Media Engine), a component that TiVo already uses today for access to services such as YouTube Inc. and Flickr”) (emphasis added).

achieved.⁹ The tools and technology exist *today* to provide consumers with a real choice of navigation devices, but no market for retail navigation devices can develop without access to core cable programming services delivered by switched digital and future IP-transmission techniques. As TiVo has previously asserted, the Commission must either (1) reaffirm that all per-channel programming must be directly available to consumers using competitive set-top boxes that are technically capable of accessing such programs (and that operators must take steps necessary to support such access); or (2) initiate a rulemaking to determine how competitive retail devices will be provided with access to cable programming signals implemented with switched digital and future IP-transmission techniques.¹⁰ Calls for NOIs to study “whether” the Commission should act are mere calls for delay. The Commission has an enormous record before it. At least with respect to providing retail devices with access to switched digital and future IP-delivered programming, action by rulemaking is *required* for the Commission to fulfill its obligations under Section 629.

The Commission Should Not Be Diverted From The Goals Of Section 629 And NBP #27 – To Bring Competition To The Device Market For MVPD Programming.

NCTA’s Reply Comments acknowledge that Congress enacted both Section 624a and Section 629 to bring competition to device markets for MVPD services,¹¹ but otherwise suggest that the delivery of *Internet programming to televisions* should be sufficient.¹² If such were the case, NBP #27 would not have been necessary, as it is addressed to a very different, converse need: the delivery of *MVPD programming to home networked devices*.

NCTA similarly turns history and markets on their head. The Reply suggests that restricting the competitive availability of devices is a “life or death” issue for the cable industry, but that making fully capable networked devices available to consumers is only an “option” for device manufacturers. This is precisely backwards: In the 1990s, when Sections 624a and 629 were enacted, there was a thriving and intensely competitive market in retail VCRs that recorded cable programming. The capabilities and quality of these products increased every year as

⁹ *Implementation of Section 304 of the Telecommunications Act of 1996; Commercial Availability of Navigation Devices*, CS Docket No. 97-80, Report and Order ¶ 46 (rel. June 24, 1998). (“[W]e believe that Section 629 is intended to result in the widest possible variety of navigation devices being commercially available to the consumer.”).

¹⁰ See Petition for Reconsideration or Clarification of TiVo Inc., File Nos. EB-07-SE-351, EB-SE-352 (July 27, 2009); Reply to the Oppositions of Time Warner Cable Inc. and Cox Communications Inc. to Petition for Reconsideration or Clarification of TiVo Inc. (Aug. 21, 2009).

¹¹ *NBP Public Notice #27*, GN Docket Nos. 09-47, 09-51, 09-137, CS Docket No. 97-80, Reply Comments of the NCTA on NBP Public Notice #27 (Jan. 27, 2010).

¹² NCTA Reply Comments at 4-9.

their prices declined from the thousands to the hundreds to the tens of dollars.¹³ This market has largely disappeared into a black hole of service-provider leased DVRs.

In the DVR world, TiVo is the only major competitive entrant left standing. This is not due to any falloff in the competitive abilities of manufacturers. Consumer electronics and information technology companies have produced inexpensive and sophisticated products that successfully managed the transition to broadcast digital television, inexpensive Internet gateways, and a plethora of laptop, imaging, game, and handheld products that also provide better value for less cost every year. The problem, rather, is that MVPDs have not provided adequate opportunities for retail device competition.

Whether TiVo and other competitive entrants can remain viable will depend on whether MVPD services can equitably support the use of competitive devices. TiVo has sought for a decade to provide consumers with a competitive retail option. In TiVo's experience, a commercially viable retail market needs three essential components: (1) access to all cable programming that a subscriber pays to receive (not merely a subset); (2) easy installation; and (3) the ability to offer a user experience that provides additional value to the consumers. Without these three things, a market for retail navigation devices simply cannot develop. Without service provider support of core MVPD functionality, the goals expressed by the Commission in NBP #27 cannot be achieved. Again, without a prompt and expeditiously-conducted rulemaking proceeding to update its rules and preserve subscriber access to the channels for which subscribers pay, it will be too late to achieve these goals.¹⁴

NCTA suggests that "televisions" can and should be the appropriate focus for enabling retail devices to work interactively with MVPD systems.¹⁵ While TiVo believes that TVs should also be equitably supported on MVPD systems, a regime that picked fully integrated TVs as the only fully supported competitive entrant devices would make no more sense than one that picked desktop computers with fully integrated cable modems to be the only broadband-empowered devices. In addition to forestalling innovation from anyone *except* TV makers,

¹³ The first *Betamax* recorder came integrated with a television and cost around \$2000. The first standalone unit cost \$1300 – more than \$4,400 in today's dollars. See <http://www-personal.umich.edu/~jdlitman/papers/storyofsony.pdf>. Today a new combination VCR and DVD player costs less than \$100. <http://www.bestbuy.com/site/JVC+-+Progressive-Scan+DVD+Player/2-Head+Hi-Fi+VCR/9714626.p?id=1218156772255&skuId=9714626>.

¹⁴ TiVo addressed its concerns with CableCARD installation in its response to the public notice, and the Commission is aware of the need for a regulatory rather than waiver approach to conditional access issues. The case for a "gateway" approach as an alternative to "fixing" the existing CableCARD regime was also laid out by a number of commenters, including CEA and Public Knowledge. Obviously, details of specific approaches can be refined through public comment and need not be presented to the Commission as a fully fleshed out technical proposals.

¹⁵ NCTA Reply Comments at 4-9.

this would run explicitly counter to the objectives of the National Broadband Plan, as it would limit, rather than expand, the options available to consumers. It would also be inefficient, as consumers neither buy nor replace TVs as frequently as they do less expensive application platforms.

NCTA, in focusing on (1) Internet-carried video programming and (2) integrated televisions, is really suggesting that the markets for MVPD programming and for Internet-carried programs should remain segregated and isolated, with only MVPDs themselves able to link these markets via a leased set-top box with an integrated EPG.¹⁶ But subscribers who want competitive alternatives should not be limited to their once-in-a-decade choice of a new television receiver. They should be free to choose TiVo, a leased MVPD box, or other competitive products to enjoy all of the television programming to which they subscribe, whether delivered by an MVPD or broadband. That is the entire point and rationale of NBP #27, and it is the best way, at this late date, for the Commission to comply with Section 629's mandate to *assure* that competitive devices can compete on MVPD systems.

Cable Content Can Be Accessed, Rendered, And Stored Securely On Home Networks.

The Commission has identified two interests of an MVPD in signal security – preventing “theft of service” as the product is introduced to the home and initially rendered, and addressing copyright-based protections as the product is introduced into the home network. In a September, 2000 Declaratory Ruling and Further Notice of Proposed Rulemaking, the Commission ruled that the latter is a subset of the former and may reasonably be addressed in competitive devices via licensing, and that any licensing abuses may be appealed to the Commission.¹⁷ NCTA has presented no evidence that this system does not work or will not work satisfactorily in the context of access to a cable system via a gateway or any other retail device in the home.

The “TV Everywhere” service demonstrates that high value content can be delivered securely using standard Internet encryption and authentication techniques. The TV Everywhere service is designed to enable MVPD customers to enjoy their television programming on a variety of devices, including personal computers and IP connected devices. These personal computers and IP connected devices are *not* required to use tru2way middleware. There is no hardware

¹⁶ NCTA touts the cable industry's movement to offer Internet-carried programming via its set-top boxes – but fiercely opposes any approach by which a competitively-sourced product could offer both sorts of programming on a similarly integrated and interactive guide menu. *See, e.g.*, NCTA Reply Comments at 4-9, 24-26.

¹⁷ *In the Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, CS Docket No. 97-80, Further Notice of Proposed Rulemaking and Declaratory Ruling ¶ 28 (reL. Sept. 14, 2000).

authentication. There is no certification by CableLabs or anyone else, and no additional license terms imposed on device makers; and the service uses Internet-based security and open web protocols. The content delivered by TV Everywhere is *interactive* and on-demand, and relies upon the Internet for upstream signaling, to tell the server what content to stream to the IP connected device.

While not required by Section 629, the Commission has previous experience in dealing with the certification of technologies that balance the desire to protect content from unauthorized redistribution, ensure flexible use by authorized consumers, and encourage the development of new technologies. If deemed necessary, the Commission could further require the use of tools such as authentication, key exchange techniques, encryption, and even content localization techniques such as limits on the Time to Live (“TTL”) and/or Round Trip Time (“RTT”) fields in IP packets, which represents the number of routers through which an IP packet can pass before it is discarded, and the amount of time that an IP packet and associated responses can travel between devices, respectively.

The procedures developed in connection with the Broadcast Flag proceeding are a model of how the Commission can establish metrics against which a number of technologies, both standard and proprietary, can be certified for secure yet competitive use.¹⁸ In the Broadcast Flag Order, the Commission adopted rules setting forth the relevant criteria and metrics. These included:

- Technological factors, including but not limited to security, authentication, upgradability, renewability, interoperability, and the ability of the technology to revoke compromised devices;
- Licensing terms, including compliance and robustness rules, change provisions, approval procedures for downstream transmission and recording methods, and the relevant license fees; and,
- Accommodation of consumers’ use and enjoyment of content.

The establishment and soundness of these metrics was in fact one of the least controversial aspects of the Broadcast Flag proceeding. In the Broadcast Flag proceeding the Commission found that thirteen technologies satisfied criteria established to protect the content against indiscriminate redistribution. While the Commission may establish a different threshold for cable content protection, DTCP-IP, for example, has already been approved in CableLabs

¹⁸ *In the Matter of Digital Broadcast Content Protection*, MB Docket No. 02-230, Report and Order and Further Notice of Proposed Rulemaking (rel. Nov. 4, 2003) (“Broadcast Flag Order”). These regulations were challenged and voided only on the basis of jurisdictional considerations that would be inapposite with respect to Section 629.

licenses for the purposes of protecting cable content in the home over IP-based networked devices.¹⁹

Examples Cited By NCTA Provide Precedents For Interactive Operation Of Competitive Retail Devices.

One of the key benefits to consumers from competitive retail devices is the consumer's ability to choose different, sometimes more advanced interfaces to select content from among a variety of sources. Consumer interfaces should not limit access to just cable channels, but also should provide easy selection of on-demand content, content the consumer has recorded, internet content, and more. Cable VOD can also be presented on a retail device with the same organizational structure and presentation as on operator-provided boxes. *This is what TiVo does with Netflix and other broadband VOD services today. There is no technological or policy reason why this capability should not be extended to content received via cable.*

For example, VOD programming can be presented in a separate area of a user interface. In this implementation, TiVo simply seeks the VOD guide metadata to enable subscribers to find or discover cable VOD titles when they use TiVo's search tools. If a subscriber uses TiVo's search functionality to look for "Modern Family" and "Modern Family" is available on Cable VOD and the consumer wishes to watch "Modern Family" on Cable VOD, then clicking the remote takes the subscriber to the Cable VOD user interface to watch the program. The metadata simply helps the subscriber find the program it wants to watch. Alternatively, a user could simply enter the Cable VOD area of the TiVo user interface and browse for "Modern Family" using the cable operator's organizational structure and presentation. Again, this is what TiVo does today with Netflix. Providing access to guide metadata is not akin to "unbundling" or "disaggregation" of MVPD systems and services and does not "dismantle" the economic underpinnings of the MVPD business model. It is analogous to how Internet search engines work.²⁰ If programming and ease of installation are comparable, the user experience – particularly search and discovery functionality – is a key element that provides the additional value necessary for a consumer to purchase a product at retail.

¹⁹ For a detailed description of DTCP and other content protection technologies, see *In the Matter of Digital Output Protection Technology and Recording Method Certifications*, MB Dkt. No. 04-63, Order (rel. Aug. 12, 2004).

²⁰ If you search for "FCC" on google.com, then 23,500,000 hits are presented, including fcc.gov. You can get directly to the content on fcc.gov by clicking on the Federal Communications Commission home page. Alternatively, you can type fcc.gov in your browser. Access to content using such search tools do not present cognizable Constitutional, copyright, or trademark issues.

NCTA's Jurisdictional, Copyright, And Constitutional Objections Do Not Withstand Scrutiny.

Consumer choice of user interfaces has been impeded by assertions of exclusive rights to the data that populates the interface. In effect, MVPDs have asserted control over facts: what content is playing at a particular time on a particular channel; or, in the case of on-demand content, facts identifying what content is available. But in truth, *there is no intellectual property right that protects facts* – no more than a telephone company can assert protection over the names, addresses and numbers in a phone book, or a museum could claim over titles and artists of works in its collection. Neither exhibits the originality that would qualify it for any sort of copyright protection. Yet, the MVPDs persist in preventing the ability of consumers to access the facts that they already are paying for in the electronic program guide in a more convenient way of their choosing.

The NCTA has acknowledged that intellectual property rights have not posed an obstacle to cable operators providing metadata and channel mapping information so as to enable third party devices to learn what programming is being offered – even though the cable operators do not own the EPG metadata they use in their own guides.²¹ Similarly, retail device makers are responsible for securing the intellectual property rights to receive and use guide data. For example, TiVo has arrangements with both Rovi and Tribune allowing it to receive and use EPG metadata on its retail products. Such license arrangements are available to any set top box (or personal computer) maker.²² The Commission does not need to override any contracts, technologies or intellectual property rights in order for necessary data to be available to competitors.

Section IV of NCTA's Reply presents an assortment of alleged legal impediments to proposals that enable real choice in retail devices. As shown below, there is no jurisdictional or legal impediment to implementation of these proposals. NCTA mischaracterizes what is being requested by TiVo. They claim the Commission lacks jurisdiction to facilitate competitive retail devices, heedless that the same arguments NCTA made to the Commission in the Plug and Play proceeding some six years ago support the Commission's jurisdiction today. They attempt to confuse protection of copyrighted programming with facts identifying the programming, which have no copyright protection. And they attempt to erect Constitutional barriers to choice under a flawed analysis. Indeed, many of the cases NCTA cites cut against its arguments.

²¹ As NCTA noted, guide data can be provided to retail boxes under the Tru2way MOU without running afoul of intellectual property rights. NCTA Reply at 21 n.28. Clearly, operators have the ability to provide meta data to retail boxes that have secured the relevant intellectual property rights.

²² Naturally, consistent with the FCC's patent policy, the Commission can be expected to consider complaints that guide data is not being licensed on reasonable and non-discriminatory terms, or is unavailable due to outstanding patent claims. *Cf. Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service*, 6 FCC Rcd 7024, 7034 (1991).

To begin with, NCTA proceeds from a false premise. No proposal of which TiVo is aware (*i.e.*, access to “interactive” programming and guide metadata by Plug and Play devices or various gateway concepts) would require an MVPD to unbundle or disaggregate content being delivered to the consumer; or to permit someone to rebrand MVPD service as its own. The proposals being asserted merely seek to reference factual information from the EPG metadata that describes available programming. They do not disaggregate or unbundle the programming services, any more than any EPG does. The proposals merely break the unnecessary tie between the programming itself and data describing the programming – much as the Commission’s implementation of Section 629 broke the bond between security and services.

No approach would prevent MVPDs from offering their own boxes. But that should not mean that the reverse should be mandated, *i.e.*, that MVPDs’ cable EPGs must be the only option. All that is at issue is whether a competitive EPG can present data to the consumer in a more consumer-friendly and useful interface that enables consumers to get easy access to all available content, from all sources. As noted above, this is what TiVo already does for on-demand offerings from Netflix and for broadband content.

Second, the Commission clearly has jurisdiction to facilitate such access. Part and parcel of competitive navigation devices is the interface and the data that enables that navigation to occur. Indeed, NCTA argued persuasively in March, 2003, in one of the dockets referenced by NBP #27, that such jurisdiction *does* exist. *Then*, NCTA asserted:

These rules are well within the FCC’s jurisdiction, vested in it by various sections of the Communications Act, including (1) the “compatibility”. labeling and commercial availability requirements of Section 624A, (2) the MVPD “navigation device” requirements of Section 629, and (3) the digital transition requirements of Section 336(b)(4) and (5).²³

In April, 2003 Reply Comments, NCTA elaborated that the FCC had demonstrated jurisdiction in analogous circumstances. For example:

- 47 C.F.R. § 79.1 imposes closed captioning requirements on MVPDs;
- 47 C.F.R. § 76.225 requires cable operators to observe commercial limits on children’s television programming;
- 47 C.F.R. § 79.2 requires MVPDs to make programming providing emergency information accessible to persons with disabilities;

²³ *In the Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment*, CS Dkt. No. 97-80, PP Dkt. No. 00-67, Comments of the NCTA at 17 (Mar. 28, 2003).

- Under Section 629, it is not a violation of the separation requirement of its navigation devices rules to include some measure of copy protection within a host device, as part of a cable operator's grant of conditional access to its services;
- Section 624A imposes labeling rules for Digital Television Receivers to identify to consumers cable programming capabilities;
- Section 624A specifies technical requirements with which a television receiver. must comply in order to be sold as "cable compatible" or "cable ready."²⁴

The same analogies apply here. The EPG Data is being sought to promote ease of navigation by consumers, using products competitively available at retail. Contrary to NCTA's contentions, granting access to metadata delivered to a consumer in an EPG does not impose requirements regarding "the provision or content of cable services." Neither does access to guide metadata turn a cable system into a common carrier. All that is being sought is access to data already being paid for by the subscriber from the cable service. Consequently, approaches requiring access to guide metadata are not contrary to either Section 621(c) or Section 624(f)(1).

Third, NCTA's insistence concerning proper licensing of metadata is simply a non-issue. As NCTA concedes and TiVo notes above, licenses to the data are available, and TiVo has obtained those necessary licenses.²⁵ While NCTA suggests that such licenses only should be acquired under its tru2way agreements, it is unnecessary to do so; and, in any event, none of CableLabs's private bilateral agreements can limit the FCC's jurisdiction to act. NCTA cannot use metadata licensing as leverage to compel all companies to accept the tru2way agreement, rather than simpler and less restrictive approaches.

Fourth, NCTA's constitutional arguments raise no impediments to approaches requiring access to guide metadata. Seeking to invoke First Amendment concerns, NCTA asserts, "[t]he Supreme Court has long recognized that a cable operator's choice and arrangement of programming and services is protected editorial expression under the First Amendment."²⁶ But their citation to *Turner Broadcasting v. FCC* is inapposite. The Court there observed that cable programmers and operators exercised rights of speech "through original programming and by exercising editorial discretion over which stations of programs to include in its

²⁴ *In the Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment*, CS Dkt. No. 97-80, PP Dkt. No. 00-67, Reply Comments of the NCTA at 48-51 (Apr. 28, 2003).

²⁵ Indeed, the licensors appear more than willing to make such license rights available to many CE manufacturers in the near term. See *Consumer Electronics Daily, Rovi Sees First TotalGuide Agreement with CE Manufacturers in March*, Vol. 10 No. 30 at 2 (Feb. 16, 2010).

²⁶ NCTA Reply Comments at 31.

repertoire...”²⁷ But TiVo does not seek access either to programming or any element involving editorial choices as to what stations to include on its channel line-up. The metadata merely identifies the choices that are being offered to the consumer, without interfering with the choices themselves. The Court did not recognize any free speech rights in the “arrangement” of programming or services on particular channels. Nor can one imagine how a First Amendment interest in which channels are made available on a cable system can be stretched to assert an interest in *how* those channels are located by the consumer. Yet that is all that constitutes the EPG metadata sought by TiVo.

Access to guide metadata also poses no risks of a violation of the “Takings” clause under the Fifth Amendment. As is clear from the case cited by NCTA, no “taking” would occur. In *Ruckelshaus v. Monsanto*, 467 U. S. 986 (1984), the Court found that EPA regulations that permitted use of data concerning one pesticide in the evaluation of subsequent competitive products effectuated a “taking” only as to data submitted before the regulation took effect. The Court found that Monsanto had no reasonable investment-backed expectation of compensation in data submitted after the regulation took effect, and so no taking occurred with respect to the prospective application of the regulation.²⁸ Thus, a Commission regulation with only prospective effect (*i.e.*, affecting only EPG data delivered after a future date) would be consistent with the Fifth Amendment and would not constitute a “taking” under *Ruckelshaus*.²⁹

²⁷ 512 U.S. 622, 636 (1994) (“*Turner I*”). Although not germane to access to guide metadata, NCTA fails to mention that the Supreme Court held in that case that an MVPD’s “editorial discretion” is subject only to intermediate scrutiny under the First Amendment, and can be and is limited by countervailing public interests. Under “intermediate scrutiny,” the government must show that the law is necessary to achieve a substantial, or important governmental interest, and that the law is narrowly tailored to that interest. See *Turner Broadcasting System, Inc. v. F.C.C.*, 520 U.S. 180, 189 (1997) (“*Turner II*”), citing *United States v. O’Brien*, 391 U.S. 367, 377 (1968). In *Turner II*, the appeal from the remand of *Turner I*, for example, the Court upheld over the cable industry’s objection the constitutionality of the “must carry” rule, finding it an incidental and content neutral burden on speech. The purpose of the “must carry” rule was “to protect broadcast television from what Congress determined to be unfair competition by cable systems.” *Turner Broadcasting*, 512 U.S. at 652. A regulation granting access to underlying EPG data similarly would further the Congressional determination to assure competition in consumer navigation devices, in a content-neutral way. Thus, even if First Amendment concerns were pertinent here, the paramount public interests undergirding Sections 624A and 629 would satisfy intermediate scrutiny.

²⁸ Moreover, the data submitted before the regulation took effect was only a “taking” because the government action was found to destroy all of the economic value of the trade secret. *Id.* Having to share guide metadata with retail devices doesn’t destroy its value, much less the value of the cable service.

²⁹ The traditional test for regulatory takings emerged in *Penn Central Transp. Co. v. New York*, 438 U.S. 104 (1978). *Penn Central* involved a claim against the designation of the Penn Central Station as a state historic landmark, thereby prohibiting its owners from developing the space above the building. The Court utilized a three-prong, ad-hoc analysis that considered the following: (1) the character of the governmental action; (2) the economic impact of the action; and (3) the extent to which such action interferes with the claimant’s reasonable investment backed expectations. Based on the three-part analysis, Penn Station could not prevail on its regulatory

Importantly, the Fifth Amendment does not prohibit “takings” for a public purpose.³⁰ It requires only that any such taking be justly compensated. *See, Ruckelshaus, supra; Kelo v. City of New London*, 545 U.S. 469 (2005). Yet this issue does not even arise. Subscribers already do pay cable systems for the right of access to the EPG and metadata. All that is being asked is that access to data for which the consumer has paid be ported to an interface format that is not limited to the MVPD’s set top box and is available to other competing devices.³¹ For all these reasons, even if a regulation permitting consumers to access that EPG data in a separate interface could be deemed a “taking,” the regulation would not interfere with any reasonable investment-backed expectations of the MVPDs, and would not be precluded under the Takings clause.

Fifth, NCTA confuses the protection of content itself with protection of factual information about the content. As noted above, a product that received protected content would perpetuate protection over the programming in accordance with the licenses and compliance rules requirements imposed by the protection technologies themselves and existing laws such as the Digital Millennium Copyright Act.

Neither is there any merit to NCTA’s assertion of cognizable copyright issues by providing metadata. Copyright does not protect facts. “That there can be no valid copyright in facts is universally understood.”³² To the extent a cable company creates “original graphic, text, video and other content for use in their program guides and interfaces,” TiVo does not seek such original content – only access to basic factual information contained in the EPG.

takings claim. The character of the governmental action, the landmark designation, was not a direct physical invasion; Penn Station still had the ability to use the airspace above the terminal and gained transfer development rights; and the regulation did not interfere with the use of the station as a station so Penn Station retained its investment-backed expectation of interests. *Id.* at 136-38. Doing business in highly regulated fields raises the bar for cable operators seeking to make viable Fifth Amendment claims. *See, Monsanto*, 467 U.S. at 1011; *Connolly v. Pension Benefit Guaranty Corp.*, 475 U.S. 211, 223-24 (1986) (emphasizing that federal law could disregard existing contract rights in highly regulated fields without violating either the Due Process or Takings Clause).

³⁰ Any regulation promulgated by the Commission in furtherance of the competitive availability requirements of Section 629 would undoubtedly further public, not private, purposes.

³¹ To the extent that MVPDs believe that additional compensation is appropriate, they are not prevented from adjusting their prices provided they comply with applicable laws including antitrust.

³² *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 344 (1991); 17 U.S.C. § 102(b). *See* Copyright Office FAQ, *What Does Copyright Protect*, <http://www.copyright.gov/help/faq/faq-protect.html> EPG data also can be viewed as essential to the function and operation of the method of selecting television channels, and such functions and methods of operation also are excluded from copyright protection. 17 U.S.C. 102(b); *see Lotus Dev. Corp. v. Borland Int’l, Inc.*, 49 F.3d 807 (1st Cir. 1995) (determining that commands and hierarchical menu command structure for selection of spreadsheet operations is not protectable by copyright). “If specific words are essential to operating something, then they are part of a ‘method of operation’ and, as such, are unprotectable.” *Id.*, 49 F.3d at 816.

Again, the main case cited by NCTA proves TiVo's point. *Feist* involved a claim of protection to a white pages telephone directory organized by geographic region and name, and including the address and telephone number of each resident. Despite the publisher's substantial investment in compiling tens of thousands of listings, the Court held the directory could not be protected by copyright because the compilation of that basic factual information lacked the constitutionally-required element of originality.³³ Similarly, MVPDs cannot protect the underlying facts in an EPG. Like the data in a white pages phone book, the EPG contains basic facts as to time, channel, program name, and, in the case of on-demand content, availability. These facts themselves are not protectable by copyright, regardless of whether these facts could be ordered or arranged in an original way.³⁴

Sixth, NCTA's "misappropriation" theory holds no water here. There is no federal law of misappropriation. Obviously, if access to EPG data were permitted by a Commission regulation, it could not be considered a misappropriation under any state law. But even in the absence of regulation, the narrow tort of misappropriation would not cover access to facts in an EPG. In *Nat'l Basketball Ass'n v. Motorola, Inc.*,³⁵ (cited by NCTA Reply at 33 n.55), the Second Circuit held that any "misappropriation" of factual information is restricted for a limited time, as a "hot news" exception; and that absent that additional temporal element, the misappropriation theory was preempted by federal copyright law precluding protection over

³³ *Id.*, 499 U.S. at 345.

³⁴ In that connection, NCTA misplaces its reliance on *Nat'l Ass'n of Broadcasters v. Copyright Royalty Tribunal*, 675 F.2d 367 (D.C. Cir. 1982). Although that court found that the selection of programming for a broadcast day may be protected by copyright, it is because that selection and ordering of programming contained some element of authorship. The same cannot be said of the facts that merely identify the programs, time, and channel. TiVo is not seeking to repackage the programming itself or to offer the same programming on a competing channel. It merely seeks access to unprotectable facts in the EPG metadata.

Similarly, NCTA is incorrect in asserting that a competitor has no right to make copies of a copyrighted work (here, a compilation) for the purpose of obtaining access to certain underlying, nonprotectable facts. *See, e.g., Sony Computer Entertainment v. Connectix Corp.*, 203 F.3d 596 (9th Cir. 2000) (fair use to copy and disassemble game console BIOS in order to analyze noncopyrightable functions for competing virtual system interoperable with console-specific games); *Sega Enterprises Ltd. v. Accolade, Inc.* 977 F.2d 1510 (9th Cir. 1993) (fair use for game software competitor to make a copy of copyrighted game console code and to copy noncopyrightable security elements so as to facilitate interoperability). "To the extent that a work is functional or factual, it may be copied." *Id.*, 977 F.2d at 1524. To hold otherwise would effectively extend copyright protection in the arrangement of facts to the facts themselves, contrary to the express provisions of the Copyright Act.

³⁵ 105 F.3d 841 (2d Cir. 1997).

facts.³⁶ Sports scores, descriptions of plays, and player and team statistics transmitted via sports pagers were held not to be misappropriated. In reaching that conclusion, the court articulated the elements of state law misappropriation – including two crucial elements ignored by NCTA in its Reply; namely, that: “(ii) the value of the information is highly time-sensitive” and “(v) the ability of other parties to free-ride on the efforts of the plaintiff would so reduce the incentive to produce the product or service that its existence or quality would be substantially threatened.” *Id.*, 105 F.3d 852.³⁷ Thus, no misappropriation theory could apply here. Television schedules, typically set long in advance, do not qualify as “hot news.” Even late schedule changes would certainly exceed the gap between the final buzzer and reporting the final score, which was held permissible in *NBA v. Motorola*. In any event, the ability of consumers to gain access to EPG data through another interface will not reduce any incentive by cable operators to create an EPG. MVPDs will continue to be paid by consumers for access to the EPG. And, competition from companies such as TiVo may spur innovation by MVPDs to create a better EPGs than what consumers have been forced to settle for to date.

Finally, NCTA’s Lanham act theory is similarly meritless. Trademark law protects words, phrases, or symbols capable of distinguishing the goods and services of one entity from those of another;³⁸ it cannot protect factual information in an EPG, since facts cannot be branded or owned. There also is no issue of “passing off” TiVo’s guide as that of an MVPD, or vice versa. It will be clear to consumers who they pay to acquire cable services and whose interface they choose – the MVPD’s or a competitor’s. Both guides will be available to consumers, who can choose which better meets their needs. TiVo has been providing its own guide and user interface for over ten years and consumers have not been confused as to its source. Moreover, gaining access to EPG metadata does not involve stripping of any MVPD trademarks visible to the consumer. Rather, TiVo wants access to the underlying data *without* any trademarks of the MVPD. In this regard, NCTA misuses the trademark term of art “dilution” which refers to the use of a famous mark in a way that dilutes its value – like using “Coke” to refer generically to cola soft drinks or “TiVo” for all DVRs. But that is the opposite of what TiVo seeks. TiVo does not want to be forced to use any of the MVPD’s branding just to provide factual information concerning programming available to the consumer.

³⁶ See also *Financial Information, Inc. v. Moody's Investors Service, Inc.*, 808 F.2d 204 (2nd Cir. 1986) (information in Moody’s “Financial Daily Card Service” held not copyrightable, and defendant’s use of those facts was not a misappropriation under N.Y. law).

³⁷ As the Second Circuit explained, the misappropriation theory in the other case cited by NCTA, *International News Service v. Associated Press*, 248 U.S. 215 (1918) “is not about ethics; it is about the protection of property rights in time-sensitive information so that the information will be made available to the public by profit-seeking entrepreneurs.” *NBA v. Motorola*, 105 F.3d at 853.

³⁸ See, e.g., “Basic Facts About Trademarks,” http://www.uspto.gov/trademarks/basics/Basic_Facts_Trademarks.jsp

Ms. Marlene Dortch, Secretary
February 17, 2010
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Please contact me with any questions regarding this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Matthew Zinn". The signature is stylized with a large, sweeping initial "M" and a circular flourish at the end.

Matthew Zinn
Senior Vice President, General Counsel, Secretary & Chief Privacy Officer

Exhibit D
Cisco Tuning Adaptor On Top Of TiVo DVR



Exhibit E
Cable Channel Listings for Utica, New York

Cable Channel Lineup – Utica, NY

Channel Lineups

Utica, NY
Channel Lineup and pricing packages are subject to change.

You may not have access to all the channels listed below for your area. Your individual cable subscription level, plus any additional premium channels you purchase separately determines the channels you may view.

Not seeing what you're looking for? [Try another ZIP Code](#)

Channel	Channel Name
1	ONTWC
2	CKWS Kingston, Ontario Canada (CBC)
3	Educational Access
4	WKTV
5	WTVH
6	WFSV
7	WUTR
8	QVC: Quality Value Convenience Network
9	TBS
10	YNN
11	The CW11
12	My WPNY
13	WCNY
14	USA Network East
15	ABC Family Channel East
16	MSG: Madison Square Garden
17	TNT: Turner Network Television
18	Shop NBC
19	AMC
20	VH1 East
21	Hallmark Channel
22	Comedy Central - East
23	C-SPAN: Cable Satellite Public Affairs Network
24	Lifetime Television East
25	HLN
26	Time Warner Cable Sports

View Your TV Listings
See what's on TV.
[TV Listings](#)

Display
 Sort By Package

Package Filter

- Basic
- Classic/Standard
- Digital
- HD
- Premium Channel
- On Demand
- Sports Tier
- HD Tier
- Movie Tier
- Sports Package
- Music Choice
- Adult On Demand
- Adult PPV
- Family Choice
- Not Available On CableCARDS
- Subscription On Demand
- Pay Per View
- Latino Especial / Spanish Tier
- International Premium Network
- Channels Without a Package

All Channel Packages Deselected

The screenshot shows a web browser window displaying the Time Warner Cable website. The page title is "Channel Lineups" for Utica, NY. The main content area is mostly empty, indicating that all channel packages have been deselected. The sidebar on the right contains a "Package Filter" section with a list of package options, all of which have their checkboxes unchecked.

Channel Lineups

Utica, NY
Channel Lineup and pricing packages are subject to change.

You may not have access to all the channels listed below for your area. Your individual cable subscription level, plus any additional premium channels you purchase separately determines the channels you may view.

Not seeing what you're looking for? [Try another ZIP Code](#)

Channel	Channel Name
---------	--------------

Package Filter

- Basic
- Classic/Standard
- Digital
- HD
- Premium Channel
- On Demand
- Sports Tier
- HD Tier
- Movie Tier
- Sports Package
- Music Choice
- Adult On Demand
- Adult PPV
- Family Choice
- Not Available On CableCARDS
- Subscription On Demand
- Pay Per View
- Latino Especial / Spanish Tier
- International Premium Network
- Channels Without a Package
- All

The Not Available on CableCARD Package

Channel Lineups Print

Utica, NY
Channel Lineup and pricing packages are subject to change.

You may not have access to all the channels listed below for your area. Your individual cable subscription level, plus any additional premium channels you purchase separately determines the channels you may view.

Not seeing what you're looking for? [Select another lineup](#) or [Try another ZIP Code](#)

Channel	Channel Name
Not Available On CableCARDS	
100	MLB Network
101	Free Movies On Demand
105	Nat Geo Wild
106	Fox Soccer Channel
129	BBC America
130	BIO
131	New York State Legislative Channel
135	Bloomberg TV
137	G4
142	MTV2
145	CENTRIC
150	Ovation
151	LOGO
159	Fine Living Network
163	ReelZChannel
168	Kids On Demand
170	Disney Channel On Demand
171	The Disney Channel - West
182	Cornerstore
183	ONTV4U
185	America's Auction Network
187	GemsTV
189	Daystar
190	Trinity Broadcasting Network
194	Chiller

View Your TV Listings
See what's on TV.
[TV Listings](#)

Display

Sort By Package

Package Filter

- Basic
- Classic/Standard
- Digital
- HD
- Premium Channel
- On Demand
- Sports Tier
- HD Tier
- Movie Tier
- Sports Package
- Music Choice
- Adult On Demand
- Adult PPV
- Family Choice
- Not Available On CableCARDS
- Subscription On Demand
- Pay Per View
- Latino Especial / Spanish Tier
- International Premium Network
- Channels Without a Package

No Movies on CableCARD

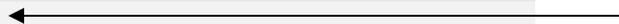
319	Cinemax On Demand
321	Cinemax West
322	MoreMAX East
323	MoreMAX West
324	ThrillerMAX
325	ThrillerMAX W
326	ActionMAX East
327	ActionMAX West
328	W MAX
329	@MAX
330	5StarMAX
331	OuterMAX
339	Showtime On Demand
341	Showtime Too East
342	Showtime Showcase E
343	Showtime Extreme - East
344	Showtime Beyond East
345	Showtime Next East
346	Showtime Women East
347	Showtime Family East
349	TMC On Demand
351	TMC Xtra East
359	Starz On Demand
361	Starz - West
362	Starz Edge - East
363	Starz Edge - West
364	Starz Kids and Family - East
365	Starz Kids and Family - West
366	Starz Cinema - East
367	Starz Cinema - West
368	Starz inBlack - East
369	Starz inBlack - West
370	Starz Comedy
382	Here! TV
383	Here! TV On Demand
397	TV Guide On Demand
398	Movies on Demand HD

Not available
on CableCARD

No Habla Espanol on CableCARD

600	Cine Latino USA
602	Sorpresa
604	CNN Español
606	<u>Fox Sports Español</u>
608	Discovery en Español
612	MTV TR3S
614	Mun2 East - TV / Canal
618	Video Rola
620	La Familia Compañía

Not available
on CableCARD



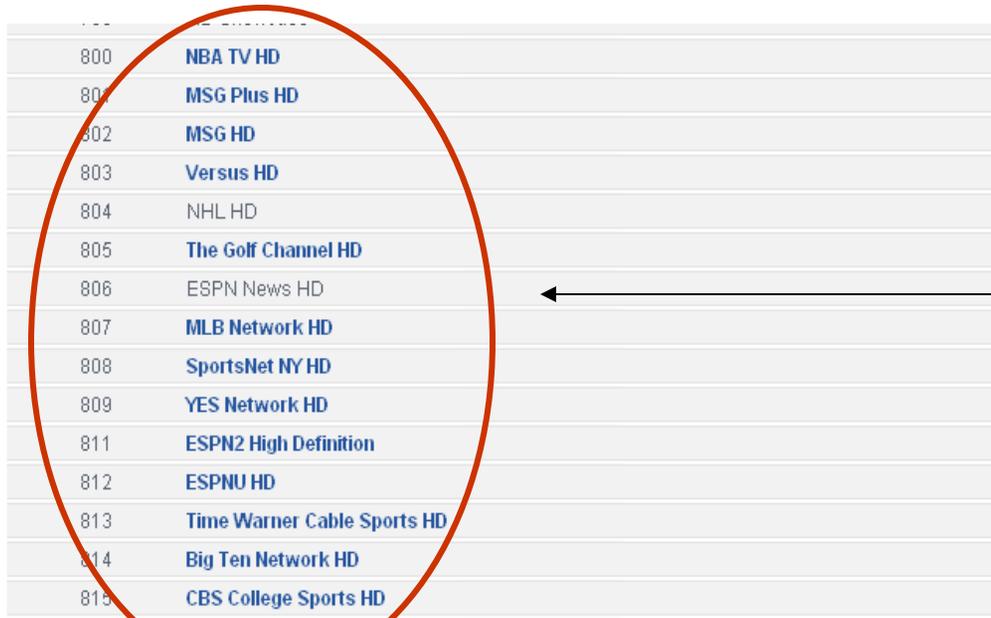
No HD Movies on CableCARD

665	CCTV-4 China TV
672	Saigon Broadcasting Network
675	ART Arab Radio & Television
752	HBO 2 East HD
753	HBO Signature East HD
754	HBO Family East HD
755	HBO Comedy East HD
756	HBO Zone East HD
757	HBO Latino East HD
763	Cinemax HD East
764	More Max HD East
765	ThrillerMAX HD East
766	ActionMAX HD East
767	@ Max HD East
768	W Max HD East
769	Five Star Max HD East
770	Outer Max HD East
774	Showtime Too East HD
775	Showtime Showcase HD
776	Showtime Extreme HD
782	TMC Xtra HD
786	Starz Comedy HD
787	Starz Kids and Family HD
788	Starz Edge HD
789	Smithsonian Channel HD
790	Smithsonian Channel HD On Demand
791	MGM HD
793	MavTV HD

Not available
on CableCARD



No HD Sports on CableCARD



800	NBA TV HD
801	MSG Plus HD
802	MSG HD
803	Versus HD
804	NHL HD
805	The Golf Channel HD
806	ESPN News HD
807	MLB Network HD
808	SportsNet NY HD
809	YES Network HD
811	ESPN2 High Definition
812	ESPNU HD
813	Time Warner Cable Sports HD
814	Big Ten Network HD
815	CBS College Sports HD

Not available
on CableCARD

Top Rated Channels Not on CableCard



810	ESPN-HD
811	ESPN2 High Definition
812	ESPNU HD
813	Time Warner Cable Sports HD
814	Big Ten Network HD
815	CBS College Sports HD
816	Palladia
817	A&E High Definition
818	History HD
819	Discovery Channel HD
820	HD Theater
821	TNT HD
822	TBS in HD
823	Fox News Channel HD
824	CNN HD
825	TLC HD
826	HGTV HD
827	Food Network HD
828	Bravo HD
829	National Geographic HD
830	Planet Green HD
831	Animal Planet HD
832	Science Channel HD
833	Crime & Investigation Network HD
834	Fox Business Network HD
835	CNBC HD+
836	MSNBC HD
837	Travel Channel HD
838	BIO HD
839	LMNH
840	Disney HD
841	ABC Family HD
842	Disney XD High Definition
844	Cartoon Network HD
845	USA HD
846	SyFy HD
847	FX HD
848	E! HD

21 out of the top 25 rated channels are not available in HD

Exhibit F
Proposed IP Backchannel Solution for SDV Compatibility

TiVo suggests four basic components for an IP backchannel solution, applicable to any broadband-enabled UDCP using CableCARD:

1. Identification of the switched services via the virtual channel map delivered by the CableCARD.
2. Broadcast of the local network information such as the node group identifier and IP address of the local SDV server.
3. A TCP/IP connection between the UDCP and the SDV servers within the local headend. The SDV protocol is used over this connection to communicate all tuning requests of the UDCP to the SDV server which returns the tuning information for the selected service.
4. The use of an in-band mini-carousel on every QAM with an SDV service to indicate current channel mapping.

We explain each of these elements below.

a. Switched Services Identification

The CableCARD identifies every SDV service on the plant via the virtual channel record as defined in SCTE 65 and delivered to the UDCP via the CableCARD. A channel_type = 2 indicates an SDV service. For channel_type=2 services the CDS_reference or MMS_reference in the table can be ignored as they are supplied in the mini-carousel or SDV server tuning request response.

b. Network Identification

The local SDV server is reached via IP connection using the customer's broadband service. The UDCP must be told the following information:

1. The local SDV service group and/or node identifier used by the SDV server.

2. The IP address and port number (and backup address/port) of the local SDV server.

These two elements must be broadcast within the SDV 'home' channel. The SDV home channel is defined within the virtual channel map and point to any live QAM service with a mini-carousel that contains the network identification information. The SDV home channel may be a hidden channel (channel_type = 1). The SDV home channel is identified as a application_virtual_channel = 1 with unique application_ID = TDB.

c. Channel Change Protocol

The UDCP uses the TCP/IP connection with the SDV server to announce every tuning event. For SDV services not currently listed in the mini-carousel as active, the UDCP waits for a response from the SDV to obtain tuning information. The UDCP and SDV server use the Switched Digital Broadcast-Channel Change Protocol defined in Section 10 of the MPEG specification ISO/IEC 13818-6 MPEG-2 Digital Storage Media Command and Control (DSM-CC).

1. The devices use TCP/IP instead of UDP messaging.
2. The UDCP uses the MAC address of the CableCARD if the CableCARD provides one, or its own MAC address if the CableCARD does not provide one.
3. The source_ID is the same as the one used in the virtual channel table delivered by the CableCARD.

The operator may or may not include additional servers in between the UDCP and existing SDV servers such as proxy servers and firewalls, but to the UDCP it will appear as if it is talking directly with an SDV server.

d. *In-Band Data Carousel*

Every digital QAM that contains an SDV service must include a PID containing a data carousel with current tuning information. The carousel will be in the Cable Virtual Channel Table (CVCT) format defined in the PSIP A/65B standard. The PID for Cable VCT will have the value 0x1FFB (base_PID).

The UDCP may use the tuning information in the carousel instead of waiting for a tune request response from the SDV server.