

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

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

**REPLY COMMENTS OF THE
NATIONAL CABLE & TELECOMMUNICATIONS ASSOCIATION ON
FOURTH FURTHER NOTICE OF PROPOSED RULEMAKING**

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EXECUTIVE SUMMARY

Improving the Consumer Experience

NCTA and its cable operator members have offered practical approaches for a short term CableCARD fix.

- ✓ We have deployed Tuning Adapters to more than 31,600 customers who use them to access two-way SDV content on one-way Unidirectional Digital Cable Ready Products (UDCPs). ARRIS (the manufacturer of Moxi) reports Tuning Adapters are a success.
- ✓ We can post the imputed charge for the CableCARDs connected to leased set-top boxes on websites, notices, or rate cards, providing transparency without the customer confusion that a new charge on monthly bills would produce.
- ✓ We can support a self-installation option for devices whose manufacturer provides adequate installation support, as Moxi and TiVo do today.
- ✓ We already provide multi-stream CableCARDs.
- ✓ We support the Commission's clarification of UDCP certification rules.

A few commenters have tried to fan fears that cable operators are out to sabotage our 520,000 customers who use retail navigation devices. They use that false pretense to urge the Commission to transform this proceeding into a (very) late-filed reconsideration of the Commission's UDCP rules adopted in 2003. The 1% of our customers who do use retail devices remain important to cable operators, and the cable industry has provided overwhelming support for them and for CableCARDs. There is no basis for imposing a new open-ended rule, as CEA suggests, that cable provide still more "technical support" for retail devices. If a *leased* device is not working, operators can support it, fix it, or replace it free of charge. If a *retail* device is not working, cable operators will ensure that the CableCARD is working, but the retail equipment is

otherwise the responsibility of the customer and the device manufacturer, which should have its own technical support lines, firmware and software updates, set-up and troubleshooting procedures, and return or refund policies.

Public Knowledge suggests cable pricing and discount packages are responsible for the unpopularity of retail devices, and urges the Commission to restructure monthly cable invoices and package discounts. The manufacturer of Moxi, the second-leading CableCARD-enabled retail device, “does not believe that CableCARD pricing and billing practices impede consumer decision making on UDCP purchases.” Public Knowledge’s proposed revisions would be more confusing than informative, and would frustrate the processes of ordering, installation, and inventory control. As to discount packages, cable offers consumers bundled discount packages of voice, video and data services to meet intense competition from satellite and telephone service bundles that include one or more set-top boxes at no additional charge. These discounted bundles have benefited consumers with considerable savings, and disassembling package discounts would undermine the very transactional economies that help keep discounts deep. Bundling has not frustrated vendors who offer compelling value. Consumers buy universal remotes even though cable remotes come with set-top boxes. Many consumers do not see the same compelling value in UDCPs because they work only with cable, only with one-way services, and are expensive. This is why so few consumers have bought them, not because cable is lowering prices to compete with satellite and telephone.

CEA proposes an additional “installation” rule under which cable operators would provide inventories of CableCARDS to retailers, rather than directly to consumers. Cable operators are willing to discuss such relationships with retailers, but many business issues would need to be resolved, including who would bear the costs of such an inventory of CableCARDS,

how retailers will manage the unique Cisco, Motorola, and Verizon cards that are in use in the same area, and what procedures would be used for activating the cards in the cable system's database.

Some parties seek to eliminate device testing and certification. Testing and certification procedures are widely used (for HDMI, WiFi, DOCSIS modems and other devices) to provide distributors, developers, consumers, and retailers the assurance that the platform, devices, and applications designed for them will actually work. DLNA, RVU, and MPAA agree. Parties with actual experience with CableLabs certification have praised CableLabs certification testing as necessary, professional, efficient, and available at reasonable cost.

There is no basis for imposing any additional significant or burdensome CableCARD-related requirements in the guise of minor short-term fixes.

Interface Requirements

Other than the parties that have a financial interest in the 1394 interface, commenters were in nearly unanimous agreement that the Commission should no longer require HD set-top boxes to include a 1394 interface that is costly and largely unused. But it is impossible to codify a list of specific replacement interfaces that will not be instantly out of date. The rush of parties proposing additions to or changes in the Commission's proposed list of interfaces proves that point, and these are just the changes that parties want *today*. As technology and markets continue to develop, the Commission would stand as the nation's gatekeeper of interface technologies. Such technology mandates distort markets and chill innovation. Texas Instruments, which has a proprietary interest in 1394, proposes to redefine output functionality extensively to turn a 1394 output from an HD set-top box into the exclusive national home networking solution – attempting to overturn the marketplace's verdict against 1394 and short-

circuiting the AllVid *NOI*. Intel asks for a rule prohibiting cable operators “from enabling particular set-top box capabilities or services using only proprietary protocols” – when proprietary protocols are often the way new technologies first launch. MPAA, EchoStar, Verizon, Entropic, and others have joined NCTA in urging the Commission to avoid technology mandates for HD set-top boxes and to remove the interface requirement.

Tuning Adapters and Switched Digital Video

Although TiVo and CEA have elsewhere recognized that technology mandates stifle innovation, they seek to impose a new mandate exclusively on cable: to engineer a new Internet pathway to cable headends that will handle SDV signaling from third-party devices, in lieu of the Tuning Adapters that are working now over secure cable plant. Their approach presents numerous unresolved issues including security and authentication, and the establishment of new standards and protocols to address the wide variety of equipment in use by various cable operators for SDV, location discovery, authorization, publication, and back-office communication. The manufacturer of the Moxi retail device, whose customers use Tuning Adapters today, states that such an expensive disruption and distraction risks doing more harm than good and that, because Tuning Adapters are working, the Commission should focus industry efforts on objectives of the *NOI* instead. What is really being sought, as Public Knowledge’s comments show, is a new solution to access on-demand and interactive content without using the approach agreed to by the major consumer electronics manufacturers and cable operators in the tru2way MOU. There may well be creative IP solutions and technological designs for interactive services, but they should be addressed for all MVPDs on an AllVid basis in the *NOI*, not in this short-term cable-centric proceeding. In the *NOI*, the parties can explore

many approaches, including commensurate requirements that must be applied to other MVPDs, to manufacturers, and to retailers.

Ending the Burden of the Integration Ban

No commenter has provided any evidence that continued application of the integration ban on additional devices would benefit consumers. Unsupported assertions that even more CableCARDS in leased boxes remain necessary are not a reasonable basis upon which to saddle consumers with millions of dollars more in additional costs. At a minimum, the Commission should adopt its proposal to exempt DTAs without recording functionality from the integration ban. But, as we demonstrated in our initial comments, the time has come to relieve cable operators of the burden to deploy CableCARDS in all of their new leased boxes. Cable operators have already deployed 21 million CableCARD-equipped boxes, compared to only 520,000 CableCARDS in retail devices. Requiring cable operators to install millions more CableCARDS in *additional* leased devices (DTAs or otherwise) will not revive the flagging consumer and manufacturer interest in one-way devices that cannot access video-on-demand and other two-way services. Continuing the integration ban would only result in consumers paying more for leased set-top boxes with no additional functionality – the exact opposite of what Congress intended Section 629 to accomplish.

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**REPLY COMMENTS OF THE
NATIONAL CABLE & TELECOMMUNICATIONS ASSOCIATION ON
FOURTH FURTHER NOTICE OF PROPOSED RULEMAKING**

The National Cable & Telecommunications Association (NCTA)¹ hereby submits its reply comments in response to the Fourth Further Notice of Proposed Rulemaking (“*FNPRM*”)² in the above-captioned proceedings. In its initial comments, NCTA emphasized its continued commitment to CableCARDS and its support for the core objective of the Commission’s proposed short-term measures to support the CableCARD experience:

- ✓ The *FNPRM* asked whether Tuning Adapters are working to provide users of one-way retail devices with access to switched digital content. We demonstrated that they are working, that the five largest cable operators provide them to customers free of charge,

¹ NCTA is the principal trade association for the U.S. cable industry, representing cable operators serving more than 90 percent of the nation’s cable television households and more than 200 cable program networks. The cable industry is the nation’s largest provider of broadband service after investing over \$160 billion since 1996 to build two-way interactive networks with fiber optic technology. Cable companies also provide state-of-the-art competitive voice service to more than 22 million customers.

² See Fourth Further Notice of Proposed Rulemaking, FCC 10-61, 75 Fed. Reg. 27256 (May 14, 2010) (“*FNPRM*”).

and that TiVo has admitted publicly that “there are no known issues with Tuning Adapters” working with TiVos.

- ✓ The *FNPRM* seeks transparency in CableCARD pricing, and we agreed that cable operators could clearly identify the imputed charge for a CableCARD in leased set-top boxes on their websites, in notices, or in annual rate cards.
- ✓ The *FNPRM* proposed that consumers be allowed to self-install CableCARDS, and we agreed that NCTA could support a rule requiring a self-installation option for devices whose manufacturer provides adequate installation support, as Moxi and TiVo do today.
- ✓ The *FNPRM* seeks to assure that cable operators will provide multi-stream CableCARDS to customers who need them, and we agreed.
- ✓ The *FNPRM* proposes to “clarify” that CableLabs shall not deny certification for a UDCP that meets the criteria in the Commission’s rules for UDCPs, and we agreed.

Most of the comments received by the Commission are consistent with NCTA’s positions and similarly focus on short-term measures that can be addressed without reinventing the wheel before the Commission considers a new framework applicable to all MVPDs in its “AllVid” *NOI* proceeding.³ But a few commenters – TiVo, the Consumer Electronics Association (CEA)/Consumer Electronics Retailers Coalition (CERC), and Public Knowledge – essentially urge the Commission to transform this proceeding into a (very) late-filed reconsideration of the Commission’s UDCP rules adopted in 2003. TiVo’s proposal to force cable operators to each build a new IP backchannel to every headend, tailored to TiVo’s needs and specifications, is really about TiVo’s effort to force someone else to bear the cost of making its one-way devices two-way capable without having to use the tru2way solution that most of the rest of the industry

³ See Notice of Inquiry, FCC 10-60, 75 Fed. Reg. 27264 (May 14, 2010) (“*AllVid*” or “*NOI*”).

has agreed to. Public Knowledge’s comments do not even try to hide this, arguing that the backchannel is needed so that one-way devices can access two-way VOD services that they were not designed to access,⁴ and calling for “surgery” on the CableCARD rules, “not just a bandage.”⁵

Such radical elective surgery is neither warranted nor appropriate given the narrow scope of this *FNPRM*. The Commission recognized when it adopted the UDCP rules in 2003 that consumers cannot access two-way services with one-way retail devices.⁶ And it specifically recognized last year that SDV is among these two-way services and held that there was no violation of Commission rules when one-way devices could not access them.⁷ In any case, the Commission is well aware that two-way interoperability is a highly complex matter that, had it not been resolved already by the tru2way MOU, could not be resolved in a rulemaking by this fall, the Commission’s target for resolution of this “short term” proceeding. More importantly, it would not be a first step toward AllVid as these commenters suggest, but instead would be a step backwards that would interfere with the Commission’s larger AllVid objectives and bog down cable operators for months to come in yet another round of resource-intensive, cable-centric, two-way negotiations and years of costly implementation.

The CEA/CERC and TiVo comments also are notable for what they do not say. Time and time again, they claim that the retail market has failed but their proposed remedy is always

⁴ See Public Knowledge Comments at 18.

⁵ Public Knowledge Comments at 7.

⁶ See *Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, Second Report and Order and Second Further Notice of Proposed Rulemaking, FCC 03-225, 18 FCC Rcd 20885, 20890, ¶ 7 (2003) (“Due to the unidirectional nature of this receiver specification, an external navigation device would still be needed to receive advanced features such as cable operator-enhanced electronic programming guides (‘EPGs’), impulse pay per view (‘IPPV’) or video on demand (‘VOD’).”).

⁷ See *Oceanic Time Warner Cable, a Subsidiary of Time Warner Cable, Inc. et al*, Order on Review, 24 FCC Rcd 8716, 8721, ¶ 12 (June 26, 2009) (“*Oceanic Order*”).

more and more mandates only for the cable industry, and not themselves or other MVPDs. In Section 629, Congress directed the Commission to assure the development of a retail market. It did not tell the Commission to force the cable industry to single-handedly create that market all at its own expense, without a single commitment from CE manufacturers, retailers, or other MVPDs. Where are CEA's proposed rules that would require manufacturers to build set-top functionality into their devices, or to provide adequate customer support? Where are CERC's proposed rules that would require retailers to carry CableCARD-enabled set-top boxes? If Section 629's mandate is as broad as they say, then the Commission's authority extends to them as well, just as the Commission had authority to regulate television receivers in connection with the DTV transition.⁸ There are many reasons the retail market has not been successful, but it is not for lack of support for CableCARDS from the cable industry.⁹ CEA/CERC and TiVo's proposed rules here would not address the fundamental issues limiting development of a retail market. Indeed, even if the Commission did everything they asked, not a single manufacturer in comments has committed to build new types of retail navigation devices, nor is there any clear evidence presented that more consumers would buy retail devices.

For these reasons, this proceeding cannot be expected to cure all of the failings of the retail market. Nor should it. The Commission has initiated its *NOI* proceeding for that very purpose. For this proceeding, the Commission should focus on the immediately-achievable near-term objectives set forth in the Commission's targeted proposals, as modified by the recommendations in NCTA's initial comments.

⁸ See *Consumer Electronics Association v. Federal Communications Commission*, 347 F.3d 291 (D.C. Cir. 2003) (upholding the Commission's authority to go beyond labeling and to directly regulate television receivers).

⁹ We have attached as Exhibit A a history of cable industry support for CableCARDS.

I. REFORMING THE CABLECARD SYSTEM

A. No Comments Refute the Commission’s Tentative Conclusion That the Integration Ban Can Be Relaxed.

Many parties, such as Verizon and the U.S. Chamber of Commerce, agreed with NCTA that the Commission should end the integration ban, and that applying the ban to additional devices would not provide any incremental benefit to consumers.¹⁰ Many others supported the Commission’s proposed lesser relief of exempting all DTAs without recording functionality from the ban.¹¹ While a few parties persist in supporting the integration ban for leased devices, they do not provide any compelling evidence that continued application of the ban to additional devices beyond the 21 million CableCARD-equipped boxes already deployed would provide any incremental benefit for consumers.

In fact, there would be no effect on consumer adoption of retail devices if the integration ban were ended. CEA and CERC may be correct that the waivers that the Commission has granted to some telephone companies that do not support CableCARDS at all may have reduced retail adoption.¹² But in the case of cable systems where CableCARDS do work, CEA/CERC is simply wrong in asserting that waivers “have contributed to operators’ continued poor support

¹⁰ See Verizon Comments at 10; U.S. Chamber of Commerce Comments at 3.

¹¹ Beyond Broadband Technology (BBT) urged that action be deferred on the Commission’s proposed DTA exemption, apparently because lower-cost DTAs would compete with its wholesale product that it seeks to sell to small cable operators. See BBT Comments at 17-20. We cannot verify BBT’s claim that its product is cost competitive with DTAs for smaller cable operators since BBT has subjected its pricing information to non-disclosure restrictions. See BBT Comments at 19, n. 20. However, many smaller operators nonetheless strongly support the proposed DTA exemption. See ACA Comments at 1-10; Sweetwater Comments at 1-3; Zito Media Comments at 1-9. We note that BBT subsequently agreed that the public interest would be served by elimination of the integration ban altogether. See Letter from Steve Effros, BBT, to Marlene H. Dortch, Secretary, Federal Communications Commission, CS Docket No. 97-80, PP Docket No. 00-67 (June 23, 2010) at 1-2 (“[I]n the alternative we support the general industry consensus that the integrated security ban be eliminated in its entirety. Eliminating the rule would at least open the market to innovative new approaches for both high end and low end boxes.”). We agree that elimination of the ban would benefit consumers by enabling manufacturers to build all types of devices and enabling cable operators to choose the most compelling and cost-effective options based upon consumer preferences and marketplace demand rather than upon a need to conform to an ineffective regulatory mandate.

¹² See CEA/CERC Comments at 9 (referencing waivers to small telephone companies).

for CableCARD reliant devices.”¹³ The inclusion of CableCARDs in *additional* leased devices (DTAs or otherwise) makes no difference in consumer preferences as to whether to purchase a retail device; in fact, most do not even know that it is there. The only result would be that consumers would pay even more for leased set-top boxes, which is the opposite of what Public Knowledge has said Section 629 was intended to accomplish.¹⁴

Public Knowledge is similarly wrong in arguing that “repeated waivers” from the integration ban caused retail devices to be “relegated to niche status and unable to achieve economies of scale.”¹⁵ The nation’s 520,000 retail devices have not become more “niche” because cable operators have deployed 21 million CableCARD devices instead of 22 million. Moreover, the commenters’ criticism completely ignores the substantial progress that has been made since CableCARDs were first introduced. In December 2005, Time Warner Cable and Charter reported needing between 3-5 additional truck rolls above and beyond the initial truck roll for every ten CableCARD installations.¹⁶ Today, this has been reduced nearly to zero.¹⁷

TiVo provides an Exhibit listing eleven redacted comments from the Tivocommunity.com website which it says are from 2010 and illustrate current problems that consumers are having with CableCARDs. But NCTA searched Tivocommunity and found that

¹³ CEA/CERC Comments at 9.

¹⁴ See Public Knowledge *et al*, Petition for Rulemaking, CS Docket No. 97-80, GN Docket No. 09-47, GN Docket No. 09-51, GN Docket No. 09-137 (Dec. 18, 2009) at 13 (“At the time it was enacted, the legislation that became Section 629 was described as a ‘proconsumer’ provision ‘designed to make cable equipment cheaper and easier to use for all consumers.’”) (quoting Comments of Representative Markey, 142 CONG. REC. H1170 (1996) and Comments of Senator Hollings, 142 CONG. REC. S693 (1996)).

¹⁵ Public Knowledge Comments at 4.

¹⁶ See Letter from Neal M. Goldberg, Vice President and General Counsel, National Cable & Telecommunications Association, to Marlene H. Dortch, Secretary, Federal Communications Commission, CS Docket No. 97-80 (Dec. 29, 2005).

¹⁷ See Letter from Neal M. Goldberg, Vice President and General Counsel, National Cable & Telecommunications Association, to Marlene H. Dortch, Secretary, Federal Communications Commission, CS Docket No. 97-80 (Mar. 31, 2010).

(1) most of these quotes are from earlier years, not from 2010; (2) TiVo redacted favorable statements by the customers from the same posting; and (3) in each instance where we could find the final resolution, the customer had in fact successfully connected their CableCARDS to their TiVos to access cable within a few days. For example, TiVo quotes a Time Warner customer complaining about the extent of knowledge regarding tuning adapters of customer service representatives serving the Columbus, Ohio market. TiVo's exhibit states that this complaint is from 2010, but it was actually posted in early September 2008, half a year before Time Warner launched SDV in Columbus. And TiVo failed to mention that the last sentence in the customer's post said, "The good news: It [their TiVo with CableCARD] works, the picture quality is excellent, and you have the Tivo interface." Also, in three cases that TiVo quotes customers expressing difficulty in getting a CableCARD, we found subsequent posts from the same users reporting successful M-Card installation within three to four days.¹⁸ Nor did TiVo mention that in many cases CableCARD problems are caused by the host device or the customer;¹⁹ or that there are scores of comments praising CableCARDS, tuning adapters, and cable operators; or concede that consumers are more likely to take the time to post problems or complaints than success stories. Anecdotes aside, the record shows that there are 520,000 CableCARDS in use today in products purchased at retail. The record does *not* show that there are a sizable number of people who want to use a retail device and have been unable to do so.²⁰

¹⁸ In the first case, the successful installation was reported three days after the initial post; in the second case, it occurred four days after the initial post. In the third case, the customer had not purchased a TiVo at the time of the first post. He did a week later, and the customer reported a successful installation three days after he received his TiVo, in a post that was very complimentary of the expertise and preparedness of the installer.

¹⁹ See NCTA Comments at 20, n. 38.

²⁰ TiVo claims that "[o]ur 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 activating them." TiVo Comments at 5-6. But it provides no evidence or data related to this "analysis."

B. There Is No Demonstrated Need to Mandate Additional Technical Support or Create New Enforcement Procedures

Some parties have asked the Commission to adopt new rules for CableCARD support and enforcement that were not proposed in the *FNPRM*. For example, Public Knowledge proposes that the Commission create new enforcement mechanisms for violation of the Commission's CableCARD rules. NCTA does not oppose the Commission's consideration of CableCARD complaints, but no new rule is necessary because the Commission has already indicated that "[i]f specific allegations of CableCARD support violations are brought to the Commission, we will investigate such allegations and take appropriate action if necessary."²¹ Few complaints have been submitted, which is not surprising since problems with CableCARD support have continued to decline and most issues are resolved within days. Relatedly, NCTA does not believe the Commission should attempt to deputize local franchise authorities to enforce CableCARD rules, as suggested by CEA/CERC.²² The Commission is better suited to enforce these rules and thereby assure consistency across the country in the interpretation of the Commission's requirements.

CEA/CERC proposes that the Commission adopt a new requirement, not proposed by the *FNPRM*, that would prohibit MVPDs from "providing installation, technical support, or other customer service that is inferior in scope or quality to the service provided to subscribers who use a navigation device supplied by the provider."²³ Cable operators are committed to providing the highest quality of service to all of their customers, but the proposed rule sweeps far too broadly. No cable operator can be expected to be as familiar with the set-up, operations,

²¹ *Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, Second Report and Order, CS Docket 97-80, 20 FCC Rcd 6794, 6814, ¶ 39 (2005).

²² See CEA/CERC Comments at 8.

²³ CEA/CERC Comments at Appendix A, "Proposed Regulations" (proposed amendments to § 76.1205(b)(1)).

features, menu structure, firmware and software updates, quirks and troubleshooting procedures of retail devices that they did not design, purchase, or provide, as they are with their leased devices. If a *leased* device is not working, operators can support it, fix it, or replace it free of charge. If a *retail* device is not working, cable operators would first attempt to ensure that the CableCARD is working properly, but the equipment is otherwise the responsibility of the customer and the device manufacturer, who should have its own technical support lines, firmware and software updates, set-up and troubleshooting procedures, and return or refund policies. There is no basis for a requirement which would conscript cable operators as manufacturers' support divisions.

C. CableCARD Pricing and Billing

1. The Proposed Changes to Monthly Cable Bills Would Not Be an Effective Means of Better Enabling Consumers to Make Rational Equipment Choices

The *FNPRM* proposed to require cable operators to state a separate CableCARD charge on every customer monthly invoice for leased devices that include a CableCARD. We explained that such a requirement would cause customer confusion and complicate ordering, installation and inventory management.²⁴ Individual cable operators underscore the point.²⁵ CableCARD lease charges, which typically range from \$0 to \$2, are unlikely to be a substantial factor in most consumers' decisions whether or not to purchase a retail device. ARRIS, the manufacturer of Moxi, the second-leading CableCARD-enabled retail device, agrees. It states that it "does not

²⁴ See NCTA Comments at 15-18.

²⁵ Comcast noted that "[m]ost of these customers are unaware that their set-top boxes include a CableCARD and may think that the line-item charge is a price increase." Comcast Comments at 26. Time Warner Cable explained how "the addition of any new itemized charge also would require expensive revisions to the billing format and may displace other important information." Time Warner Cable Comments at 14. Time Warner Cable also noted that because the useful lives of stand-alone CableCARDS leased for use with UDCPs differ from the lives of CableCARDS bundled with set-top box leases, confusion over imputed charges can be even more extensive. See *id.* at 14, n. 41 and accompanying text. Charter explained that a bill itemization requirement would complicate ordering, installation and inventory management and result in higher overall charges for new leased devices that are now averaged in with older devices. See Charter Comments at 1-4.

believe that CableCARD pricing and billing practices impede consumer decision making on UDCP purchases.”²⁶ As NCTA suggested, if the Commission believes it necessary to adopt rules in this area, a cable operator that charges for CableCARDS could identify the imputed charge for a CableCARD in leased set-top boxes on its website, in a notice, or in an annual rate card. Several cable operators offer such detail today.²⁷ But restructuring invoices will create consumer confusion and frustrate the processes of ordering, installation, and inventory control. Such a burdensome new requirement would be hard to justify when the Commission has concluded that CableCARDS have failed their essential purpose and is seeking to phase them out.

Some parties propose to force even more complication into every monthly bill. Public Knowledge urges the Commission to expand the line item into a running commentary, detailing the wholesale cost of leased set-top boxes and the cumulative amount each customer has paid in lease fees over time on the device, plus a message inviting the customer to purchase a navigation device at retail.²⁸ While Public Knowledge is proceeding from the understandable premise that well-informed customers can make better comparisons, its proposal does not serve that purpose.

In its comments, Public Knowledge compares the example of a total set-top lease cost of \$897 over 5 years with a \$300 up front purchase of a TiVo DVR.²⁹ But this comparison ignores TiVo’s monthly subscription fees, which would bring the comparable retail cost to over \$1,000.³⁰

²⁶ ARRIS Comments at 4.

²⁷ See, e.g., Comcast Comments at 25; Time Warner Cable Comments at 13-15.

²⁸ See Public Knowledge Comments at 12. See also Free Press Comments at 5 (“The Commission should also require cable operators to list on each monthly bill the total amount a customer has paid towards a device.”).

²⁹ TiVo now charges \$499.99 plus monthly service for a Premiere XL.

³⁰ See Public Knowledge Comments at 11, n. 9. The Commission has found that the real cost of owning a TiVo is much more than its upfront \$299-499 cost because of its ongoing \$12.95 monthly service fee. See *Baja Broadband Operating Company, LLC’s Request for Waiver of Section 76.1204(a)(1) of the Commission’s Rules*, CSR-7111-Z, Memorandum Opinion and Order, DA 10-373, ¶ 13 (rel. Mar. 4, 2010) (“Baja soundly refuted CEA’s assertion that TiVo devices are available at a price point that is competitive with refurbished devices”).

It ignores the fact that consumers who lease are not renting to own: they are renting for assurance that someone else will pay for up front costs, maintenance, and repair of boxes, and carry the risk of obsolescence, replacement, and return at any time. It ignores the fact that, because cable operators aggregate the costs of older integrated devices and more expensive non-integrated devices, and because they effectively insure devices that break prematurely, some customers necessarily pay more than the “wholesale” cost of their devices while others pay less.³¹ It ignores the fact that, as CableCARDS stand today, TiVo and Moxi DVRs deliver only one-way services, not two-way services, and promoting them as something more is more confusing than informative.³² Moreover, such a comparison is unnecessary given the extensive marketing messages of the consumer electronics industry, the well-informed TiVo community, and the endorsement by Moxi of current cable billing detail.³³

³¹ Public Knowledge claims to have discovered a conflict between the intent of 1996 Act amendments and the Commission’s implementation of equipment rate rules. Public Knowledge cites legislative history that the 1996 amendments were aimed at promoting a “broadband, two-way telecommunications infrastructure.” Public Knowledge Comments at 11, n. 11. The amendment specifically referred to in that legislative history was Congress’ directive to the Commission that it allow cable operators to aggregate their equipment “into broad categories, such as converter boxes, regardless of the varying levels of functionality of the equipment within each such broad category” – not to retail availability or any other provision. Equipment aggregation assists greatly in inventory control, billing, and the deployment of new technology across a wide footprint. The use of the standard aggregation accounting permitted new CableCARD-enabled devices to be inventoried, deployed, and swapped for older set-top boxes at standard average set-top prices. This facilitated the deployment of CableCARDS in leased set-top boxes. Equipment aggregation was adopted in the same Act as Section 629. The Act precludes rate regulation in areas of effective competition and mandates that the Commission *permit* equipment aggregation in all areas. *See* NCTA Comments at 15-19.

³² Public Knowledge’s suggestion that the monthly bill be used for extensive new messaging also risks making the bill much *less* user friendly. Customer bills are space-limited and already include extensive messaging on LFA addresses, closed captioning contacts, and other matters. Adding yet more messages to the bill – on a subject matter in which there is little demonstrated consumer interest – is likely to make the bills less readable and less useful to customers.

³³ If the Commission does find that additional rules are needed to educate consumers, then should it not also require TiVo to advertise how many years one would have to own and use the device before its total cost would become less than the cost of renting a cable company HD/DVR, and provide the customer with a recurring reminder that they also have the option of leasing a DVR for just a few dollars per month? This data would be just as useful in enabling consumers to “make rational economic choices” about whether to lease or purchase a set-top box.

2. No New Rules Are Needed Regarding the Bundling or Pricing of Leased Devices

CEA/CERC and TiVo also propose that consumers who use their own retail devices should receive a credit against any discount bundled service package that includes an operator's box.³⁴ Such a rule is unnecessary and contrary to the Commission's well-established policies on bundling.

As the Commission has previously found, discount bundles – such as voice, video, and data services sold in combination at deep discount from their individual prices – are a byproduct of intense marketplace competition. These bundles benefit consumers not only with direct savings but also with collateral savings as competing providers engage in responsive discounting (such as lowering the price of telephone service to retain customers).³⁵ Packages change regularly in the face of competition. Cable operators must respond to their DBS and telco competitors, who are offering service bundles that include one or more set-top boxes at no additional charge. Sometimes cable equipment is included in a bundle, and sometimes it is not.³⁶ The Commission has long recognized that “consumers want the option to purchase bundled packages of products and services, and that [service providers] facing competition in various

³⁴ See CEA/CERC Comments at 11-12; TiVo Comments at 17-18.

³⁵ The Commission has found that “[b]undling encourages competition by giving [service providers] flexibility both to differentiate themselves from their competitors and to target segments of the consumer market with product offerings designed to meet the needs of individual customers.” *In re Policy and Rules Concerning the Interstate, Interexchange Marketplace; Implementation of Section 254(g) of the Communications Act of 1934, As Amended; 1998 Biennial Regulatory Review – Review of Customer Premises Equipment and Enhanced Services Unbundling Rules in the Interexchange, Exchange Access and Local Exchange Markets*, CC Docket No. 96-61, CC Docket No. 98-183, Report and Order, 16 FCC Rcd 7418, 7426, ¶ 14 (Mar. 30, 2001) (“*Bundling Order*”). See also MICHAEL PELCOVITS & DANIEL HAAR, CONSUMER BENEFITS FROM CABLE-TELCO COMPETITION (updated Nov. 2007), available at http://www.micradc.com/news/publications/pdfs/Updated_MiCRA_Report_FINAL.pdf. Competitive pricing is the very hallmark of effective competition. Under Section 623, effective competition imposes a statutory barrier to adoption of any rule changing service prices in competitive markets. Section 623 also specifically authorizes the use of equipment aggregation in all markets. See 47 U.S.C. §§ 543(a)(2)-543(a)(7).

³⁶ Cox notes that the composition of product bundles and pricing varies by market. Some bundles include the receiver cost, and others do not. See Cox Comments at 16-17.

service markets seek the ability to respond to this demand.”³⁷ From the perspective of the competing service providers, the Commission has found that “bundling may reduce the ‘transaction costs’ of assembling a desired package of goods and services,”³⁸ further reducing costs and promoting competition. Proposals to disassemble package discounts would undermine the very transactional economies that help keep discount bundles deeply discounted.

Discount packaging has not frustrated the marketplace for compelling retail devices. Universal remotes – even those which retail for more than \$100³⁹ – are popular even if a cable remote comes with a set-top box. The popularity of UDCPs has lagged for reasons we have previously identified: they work only with cable and only with one-way services, and they are not offered at low cost. This will not be cured by changing cable’s marketing as cable competes with bundles of satellite and telephone services. The suggested rule will only serve to raise cable rates unnecessarily and should not be adopted.

The remaining pricing and billing comments of CEA/CERC, TiVo and Public Knowledge are confusing and self-contradictory. They state that cable operators should not be allowed to impose any fees on UDCP users not charged to leased box customers, except for CableCARD rental.⁴⁰ None of the six largest traditional cable operators impose such charges and we are not aware of any need for such a rule. Public Knowledge has protested that cable

³⁷ *Bundling Order*, ¶ 16.

³⁸ *Bundling Order*, ¶ 6.

³⁹ *See, e.g.*, Amazon.com (listings for “Logitech Harmony Remote Controls”).

⁴⁰ *See* CEA/CERC Comments at 11; TiVo Comments at 17.

operator set-top box lease rates are too high⁴¹ and too low⁴² and urged that cable operators give away set-top boxes for free.⁴³ These conflicting positions are not backed up by evidence and cannot reasonably form the basis for adopting its proposed rate rules.

D. CableCARD Installation

In our comments, we explained that with certain reasonable conditions NCTA can support an option for consumers to self-install CableCARDS in retail devices. We hope that our constructive engagement on that issue will prove to be responsive to the consumer concerns described in the comments about the need for professional installations. We note that the conditions we proposed in our initial comments for self-installation of CableCARDS in retail devices are consistent with measures that ARRIS and TiVo already take for customer support of their Moxi and TiVo retail devices.⁴⁴

CEA/CERC proposes an additional “installation” rule not suggested in the *FNPRM*, which would require that cable operators also provide inventories of CableCARDS to retailers so that they may install CableCARDS for the consumer. Cable operators are very willing to discuss such relationships with retailers, but there are many business issues that would need to be resolved. Who is to pay for the creation and stocking of inventory? In the early years of UDCP production, CE manufacturers would estimate the number of DTVs being shipped with CableCARD slots, but cable operators soon discovered that very few consumers made use of that

⁴¹ See Public Knowledge Comments at 11 (arguing, incorrectly, that RCN’s HD/DVR costs hundreds of dollars more to rent than a TiVo costs to buy and use).

⁴² See Public Knowledge Comments at 12 (suggesting that cable operators keep device rental fees artificially low via cross-subsidization and proposing that the Commission “ensure that no portion of an MVPD’s service fees goes to cover equipment costs – for example, by requiring that device rental fees cover all first-party device equipment and support costs incurred by the MVPD”). This ambiguous standard could be read to prohibit discount bundles altogether if the bundled price is considered to be a “service” that includes “equipment costs.”

⁴³ Comments of Public Knowledge & Media Access Project, MB Docket No. 09-168 (filed Oct. 22, 2009) at 6 (arguing that the Media Bureau “should require Cablevision to make set top boxes available for free for these basic tier subscribers for some reasonable transition period”).

⁴⁴ See ARRIS Comments at 3.

capability. CableCARDS cost money, and cable operators should not be expected to purchase and deliver inventories of CableCARDS on a consignment basis to anyone claiming to be a retailer and provide any number of CableCARDS that they request. What are the terms of access to retail shelf space? What are the retailers' procedures for entering the cards into the cable systems' databases for activation? How many varieties of cards would the retailers support? Cisco CableCARDS are coded to specific cable systems. Motorola uses different cards. Verizon uses still others. Retailers in areas with multiple service providers would need to stock multiple varieties of CableCARDS and would need to make arrangements with each operator to establish procedures for activation. Installation by retailers or manufacturers should be achievable if those parties are willing to accept appropriate obligations, but at this time it would be unreasonable and premature to impose a general requirement for all cable operators to provide CableCARDS to all retailers to perform installations.

E. M-Cards

The Commission proposed that cable operators be required to provide M-Cards to customers who request them, and NCTA agreed. CEA/CERC proposes that cable operators should be prohibited from providing S-Cards to customers unless the customer requests one.⁴⁵ Many cable operators do provide M-Cards in the first instance, but there are some older UDCPs that function only (or better) with S-Cards, yet customers may not know to request them. Therefore, adoption of the Commission's proposal would be more appropriate.

F. Certification

NCTA fully supports the Commission's proposed clarification to the rule governing UDCP certification, which we believe is consistent with current practice. CableLabs has worked

⁴⁵ CEA/CERC Comments at Appendix A, "Proposed Regulations" (proposed amendments to § 76.1205(b)(4)) ("CableCARDS supplied pursuant to subsection (b)(3) shall be multistream, unless the customer or retailer requests single-stream CableCARDS.").

closely with CE manufacturers to streamline the certification process of all devices so that products can get to market as quickly as possible and manufacturers have an agreed-upon path to self-certification. Some parties have sought to effectively eliminate UDCP certification testing, based on either misunderstanding⁴⁶ or sheer opposition to any testing at all.⁴⁷ In NCTA's Comments, we explained that similar testing and certification procedures are widely used (for HDMI, WiFi, DOCSIS modems and other devices) to provide distributors, developers, consumers, and retailers the assurance that the platform, devices, and applications designed for them will actually work. Parties with actual experience with CableLabs certification have praised it as necessary, professional, efficient, and available at reasonable cost.⁴⁸ In the seven years since rules have been in place, there has not been a single example cited of CableLabs improperly rejecting any device.⁴⁹

⁴⁶ See SageTV Reply Comments on NBP PN #27 at 9. As NCTA and the MPAA explained, the devices that SageTV makes are not UDCPs; its devices are actually "OpenCable Unidirectional Receivers," or OCURs. See NCTA Comments at 23; MPAA Comments at 6, n. 10 ("[T]he Commission's clarification to the unidirectional certificate testing requirements is inapplicable to the SiliconDust HDHomeRun CableCARD tuner, as the tuner would be tested using the test suites available for an "OCUR" device that feeds into a personal computer, not a unidirectional device. ... [The MPAA] further notes that the Sage TV reply comments are irrelevant to the Commission's decision-making in this proceeding.").

⁴⁷ See, e.g., IPCO Comments at 2. We previously explained that IPCO has not developed a certified product. See Letter from Neal M. Goldberg, Vice President and General Counsel, National Cable & Telecommunications Association, to Marlene H. Dortch, Secretary, Federal Communications Commission, CS Docket No. 97-80 (Dec. 22, 2009). IPCO's more recent comments express philosophical disagreement both with certification and with the intellectual property disclosures that are part of the basic tools that assure RAND or free licensing that the Commission seeks to promote. Cf. *NOI*, ¶ 32; see *Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service*, Fourth Report and Order, 11 FCC Rcd 17771, 17794, ¶ 55 (1996) ("We reiterate that adoption of this [DTV technology] standard is premised on reasonable and nondiscriminatory licensing of relevant patents....").

⁴⁸ See ARRIS Comments at 3. See also Comments of Ceton Corp., GN Docket No. 09-51, CS Docket No. 97-80 (filed Apr. 8, 2010) at 2.

⁴⁹ Complaints raised by CEA/CERC (CEA/CERC Comments at 12-14) about CableLabs' tru2way licensing terms are far outside of the scope of this proceeding. In any event, the terms were agreed upon by CE manufacturers and cable operators in the tru2way MOU. CEA/CERC's same comments also raise vague unsupported complaints about UDCP licensing, but these license terms were agreed to by the CE industry years ago. Under these licenses, 29 CE manufacturers have had over 600 models of televisions and other video devices approved for use with CableCARDS.

DLNA, the cross-industry organization working to network content to multiple home devices, agrees that certification is necessary: “Digital interfaces are much more complex than older, analog interfaces, but consumer expectations remain the same – devices with matching interfaces should interoperate. ... [DLNA] certification testing is essential to provide consumers some level of assurance that certified devices will interoperate.”⁵⁰ The RVU Alliance, one coalition working on networking user interfaces across multiple devices, agrees that “the best way to ensure device interoperability is to have both a detailed specification and a comprehensive certification plan.”⁵¹ MPAA offered the same view from the perspective of content suppliers, explaining that “robust and rigorous certification testing before any technology is deployed in the marketplace benefits all relevant constituents, including consumers, device manufacturers, MVPDs, and content providers,” and requested “that the Commission continue to recognize the essential value of comprehensive certification testing in the context of the CableCARD regime.”⁵²

Therefore, nothing more is needed regarding certification other than adoption of the Commission’s proposed rule and the updates referenced in NCTA’s initial comments.

⁵⁰ DLNA Comments at 4.

⁵¹ RVU Alliance Comments at 4.

⁵² MPAA Comments at 6-7. MPAA also recalled how HDMI was nearly stillborn due to the lack of initial testing and certification: “The HDMI licensor initially deployed this technology without requiring rigorous certification and interoperability testing, resulting in numerous interoperability issues in the retail market. The interoperability issues were not fixed until the HDMI licensor implemented a rigorous compliance testing program and required all licensees to participate in the program.” *Id.* at 7.

II. THE CACOPHONY OF INTERFACE PROPOSALS ILLUSTRATES THE SUPERIORITY OF A MORE FLEXIBLE APPROACH

Other than the parties who have a financial interest in the 1394 interface, commenters were nearly unanimous in agreement that the 1394 interface requirement is costly⁵³ and that hardly any consumers use it.⁵⁴ The Media Bureau has since agreed, granting a waiver from the 1394 requirement for all cable operators that instead include any Internet Protocol (“IP”)-based interface, reflecting “overwhelming marketplace support” for an alternative to 1394.⁵⁵

Although many commenters voiced general support for the alternative interfaces specified in the Commission’s proposed rule (Ethernet, Wi-Fi, USB 3.0), the rush of parties proposing additions to or changes to the Commission’s proposed list proves the point in NCTA’s comments – that it is impossible create a list of specific interfaces that will not already be out of date by the time it is published in the Federal Register. Ubee Interactive suggested inclusion of HPNA, Homeplug, and G.hn.⁵⁶ Motorola and Entropic Communications joined NCTA in urging the inclusion of MoCA in any list.⁵⁷ The MoCA Alliance itself notes that, if a list is used, then it should include the upcoming MoCA 2.0 and not just the existing MoCA 1.1.⁵⁸ The DTLA notes

⁵³ See, e.g., Beyond Broadband Technology Comments at 13-14; Cable One Comments at 12; Cisco Comments at 17-18; Echostar Comments at 5-6; Motorola Comments at 8; Telecommunications Industry Association Comments at 3; Time Warner Cable Comments at 17-18; U.S. Chamber of Commerce Comments at 4.

⁵⁴ See, e.g., Motorola Comments at 2, 7; EchoStar Comments at 4-5; Intel Comments at 3; Telecommunications Industry Association Comments at 3; U.S. Chamber of Commerce Comments at 4.

⁵⁵ See *Intel Corporation, Motorola, Inc., and TiVo, Inc. Requests for Waiver of Section 76.640(b)(4)(ii) of the Commission’s Rules*, CSR-8229-Z, CSR-8251-Z, CSR-8252-Z, Memorandum Opinion and Order, DA 10-1094 (rel. June 18, 2010).

⁵⁶ See Ubee Interactive Comments at 2.

⁵⁷ See Entropic Communications Comments at 1-2 (urging the Commission not to restrict operators to a list of specific interfaces because it would quickly become outdated, but to include MoCA if the Commission nonetheless adopts a list); Motorola Comments at 9-10.

⁵⁸ See Multimedia over Coax Alliance Comments at 4.

that its development of USB 3.0 is not even completed yet,⁵⁹ while Beyond Broadband Technology wants the Commission to add USB 2.0 instead of or in addition to USB 3.0.⁶⁰ Intel proposes that the Commission make mandatory the voluntary Universal Plug and Play Audio Visual (“UPnP AV”) and Digital Living Network Alliance (DLNA) standards; CEA/CERC proposes the same for Ethernet and Wi-Fi but not for USB.⁶¹ Public Knowledge proposes to change the Commission’s reference to Wi-Fi to dual-band 802.11n.⁶² And these are just the changes that parties want to make to the Commission’s list *today*. As time passes and technology and markets continue to develop, the chorus for changes to any list will only grow louder and more urgent.

Even those advocating the regulatory prescription of outputs acknowledge that rules are too static for technology. But their proposed remedy would make the FCC into the nation’s gatekeeper for interface technologies. CEA/CERC recommends that the Commission add outputs by petition, “in a streamlined process.”⁶³ Intel would prohibit new outputs or even augmentation to existing outputs or protocols without Commission approval.⁶⁴ But history demonstrates that any such process will stifle innovation. Intel’s recent 1394 waiver request was pending for more than eight months before it was resolved by the Commission’s recent decision, and more months presumably passed beforehand while Intel developed its technology, business plan, and legal strategy in requesting a waiver. Few things are as chilling to the development of a new technology or a venture capital investment than the word that affirmative regulatory

⁵⁹ See DTLA Comments at 2.

⁶⁰ See Beyond Broadband Technology Comments at 14.

⁶¹ See Intel Comments at 5; CEA/CERC Comments at 21.

⁶² See Public Knowledge Comments at 17. Public Knowledge’s proposal to narrowly specify specific technical requirements, such as dual-band 802.11n, would run a significant risk of repeating the mistake the Commission made with 1394 – specifying a specific technology that could soon become outmoded and out of favor.

⁶³ CEA/CERC Comments at 20.

⁶⁴ See Intel Comments at 6-7. Intel proposes a prohibition on proprietary augmentation to avoid “pollution” of standards: “implementations of non-proprietary voluntary standard protocols in cable-supplied set-top boxes should not deviate from those protocols by adding proprietary elements.” *Id.* at 6.

approval would be required before the technology could be deployed. And in the process, the Commission would be forced to decide whether a new interface was being proposed to meet consumer demand or because its proponents were seeking a regulatory crutch for an otherwise failing interface, as is the case with 1394 today.

Given the proven perils of trying to create a specific list of permitted interfaces, numerous and diverse parties including MPAA, EchoStar, Verizon, Entropic, and others joined NCTA in urging the Commission to instead repeal the interface mandate or permit any video output.⁶⁵ The Telecommunications Industry Association and the RVU Alliance urge the Commission instead to permit any IP-based interface.⁶⁶ As OPASTCO noted, “[t]echnological developments, marketplace demands, and consumer expectations evolve rapidly, often much more quickly than the regulatory process can reasonably accommodate.”⁶⁷

Flexibility in selecting and implementing digital interfaces is critical to enable manufacturers and service providers to keep up with ever-changing technologies and marketplace opportunities. The best way to deliver that flexibility while assuring consumer choice would be to repeal the interface mandate in subsections (ii) and (iii) of Section 76.640(b)(4).

⁶⁵ See, e.g., MPAA Comments at 5 (Commission should “allow[] cable operators to select the most appropriate networking interface(s) for inclusion in their leased STBs based on marketplace demand. If the Commission nonetheless elects to require that all leased STBs include a home networking interface, MPAA requests that – at the very least – the Commission refrain from mandating the specific interfaces to be included.”); Echostar Comments at 7 (Ethernet, Wi-Fi, USB 3.0 may eventually be replaced by more innovative technologies); Verizon Comments at 7-8 (mandating even a broad list means that existing/yet-to-be-developed standards would inevitably be left off the list); Ubee Interactive Comments at 2 (difficult to predict marketplace adoption of home networking interfaces, particularly for video); U.S. Chamber of Commerce Comments at 4 (given pace of innovation in video devices, technology mandates are perilous); Comcast Comments at 29 (impossible to predict whether today’s technology will be supplanted tomorrow); Motorola Comments at 9 (substantial risk that any new technology mandates would become obsolete quickly, like 1394).

⁶⁶ See TIA Comments at 3; RVU Alliance Comments at 2.

⁶⁷ OPASTCO *et al* Comments at 5.

Codifying outputs into federal regulation creates additional risk to technological innovation and competition that the marketplace can and does address more effectively. This is well illustrated by a handful of additional comments that seek to convert a “fix” for a CableCARD set-top box rule into a pre-judgment of home networking solutions. Texas Instruments (TI), which has a proprietary interest in 1394, asks for a rule that would essentially treat 1394 as a de facto national standard, and to block additional interfaces—even when the market has chosen otherwise.⁶⁸ TI is especially transparent in its request for a regulatory crutch, but other proposals present similar risks of market distortion. Intel asks for a rule prohibiting cable operators “from enabling particular set top box capabilities or services using only proprietary protocols”⁶⁹ – when proprietary protocols are often the way new technologies first launch, without awaiting standards bodies or marketplace plebiscites.⁷⁰

Likewise, those seeking rules to define remote control commands or bi-directional capabilities are both ignoring the considerable scoping, standardization, definition, and development work that such a rule would require, and the risk that attempting to define the two-way signaling on home networks is pre-judging issues that are best left to the AllVid *NOI*.⁷¹ Texas Instruments, for example, proposes to redefine output functionality extensively to turn a 1394 output from an HD set-top box into the exclusive home networking solution. As CEA

⁶⁸ See Texas Instruments Comments at 3.

⁶⁹ Intel Comments at 6.

⁷⁰ See Comments of the National Cable & Telecommunications Association on NBP Public Notice #27, GN Docket No. 09-51, GN Docket No. 09-47, GN Docket No. 09-137, CS Docket No. 97-80 (filed Dec. 22, 2009) at 18 (explaining that “[i]t is common in technology to allow design to evolve from competing solutions to specifications and then eventually to move specifications into standards. Putting the brakes on innovation until competing industries all agree in an ANSI body is a recipe to paralyze innovation in networks and services.”).

⁷¹ DLNA noted that its Guidelines “define [] remote control commands,” DLNA Comments at 3, and CEA/CERC states that the DLNA protocols make bi-directional communication over the set-top box interfaces “possible.” CEA/CERC Comments at 22. But DLNA, like CEA-931-A, only specifies certain remote control commands, and there is no standard that a cable operator could use to satisfy a proposed remote control rule with any of these interfaces. See NCTA Comments at 34.

President Gary Shapiro recently testified about remote controls, “We strongly believe it is not appropriate for the government to be in the product design business down to the level of individual buttons and functions.”⁷² The Commission would be well served to avoid adopting a rule requiring specific remote control functions, bi-directional capabilities, video formats,⁷³ or any of the other detailed technical requirements suggested in comments.

Some parties have sought additional requirements to assure that digital interfaces (like HDMI) can be used with closed captioning. HD set-top boxes that are deployed by cable operators have built-in closed captioning decoders that enable the decoding and rendering of closed captions. When this capability is turned on by the subscriber, the captions are processed in the set-top box itself, and then output with the video stream for display on the connected TV set. Adjustments to captioning are made by remote control commands to the set-top box. HD set-top boxes also can pass through captions for decoding in a connected TV set if the set-top box and TV are connected via an NTSC output (*e.g.*, coaxial cable, composite video, or S-video). In the latter case, the customer must turn on the captioning capability in the TV set to view the captions. The situation is different with SD set-top boxes. Typically, these devices do not include built-in captioning capability, so captions must be passed through for decoding in the TV set.

Similarly, certain commenters have expressed concerns that cable operators do not pass through closed captions signals separately to the TV set for decoding where an HD set-top box is connected to an HDTV set via HDMI. However, there is no technical means to separately pass

⁷² *Hearing on H.R. 3101, the Twenty-First Century Communications and Video Accessibility Act of 2009 Before the Subcomm. on Communications, Technology and the Internet of the H. Comm. on Energy and Commerce, 111th Cong. (June 10, 2010) (statement of Gary Shapiro, President and CEO, Consumer Electronics Association) at 4.*

⁷³ *See Intel Comments at 7; CEA/CERC Comments at 22; Panasonic Comments at 7.*

through closed captions to a decoder in an HDTV in such situations. HDMI is known as a “display” output. This means that the video stream, including the closed caption data contained within the video stream, has already been decoded in the set-top box *before* the video is sent to the HDTV set for display. In this configuration, the HDTV set is acting only as a display/monitor and does no signal processing. Consequently, the HD set-top box generates closed captions for display on the television screen. This is true for *any* device that outputs video using HDMI, including HD set-top boxes deployed by DBS and telco providers. Cable operators are working to ensure that subscribers better understand how to access closed captioning information that is being provided.

III. TIVO’S IP BACKCHANNEL PROPOSAL IS UNNECESSARY, TECHNICALLY DEFICIENT, AND AN IMPROPER ATTEMPT TO ADD BROAD TWO-WAY FUNCTIONALITY TO UDCP DEVICES

TiVo opens its comments on switched digital video (SDV) by claiming that the Commission’s *FNPRM* concluded that tuning adapters do not “fairly address the problems created for cable subscribers by switched digital video.”⁷⁴ But the *FNPRM* says no such thing. The *FNPRM* asks for “comment on whether this market-based solution is working and whether UDCP manufacturers and cable operators are meeting their obligations under that agreement.”⁷⁵ It is and they are. TiVo’s own website says that “there are no known issues with Tuning Adapters and Premiere/XL, TiVo HD/XL, and Series3 HD DVRs.”⁷⁶ ARRIS (the manufacturer of Moxi) reports that tuning adapters “work in providing Moxi customers with access to SDV channels and give them the experience and functionality they expect from the UDCP,” and reports the “success ARRIS has had with consumer education regarding installations of the

⁷⁴ TiVo Comments at 8.

⁷⁵ *FNPRM*, ¶ 14.

⁷⁶ Tivo.com, Tuning Adapter Troubleshooting, http://support.tivo.com/app/answers/detail/a_id/148/related/1/kw/tuning%20adapter/r_id/100041 (viewed June 24, 2010).

Tuning Adapter.”⁷⁷ More than 31,600 cable operator customers are using Tuning Adapters today to access SDV content.

TiVo tries to blame SDV and tuning adapters for the fact that “the number of consumers purchasing retail UDCPs is relatively small.”⁷⁸ But the number of consumers purchasing UDCPs was very small before SDV was launched, and is not materially larger today in markets where SDV is not in use. Consumer and manufacturer interest in one-way devices has plummeted because they cannot access VOD, and not because they need a tuning adapter to access SDV. TiVo has presented no real evidence of any significant connection between SDV and retail adoption, and we believe that there is none.

TiVo repeatedly suggests that SDV is used for the benefit of cable operators at the expense of consumers. The purpose of SDV is not to save money – SDV costs money to deploy. The purpose of SDV is to deliver new broadband, video and other services to our customers, 99% of whom do not use one-way retail navigation devices. The remaining 1% of our customers who do use retail devices are also important to us, which is why we invested the time and effort in developing the Tuning Adapter solution. Given that this proceeding is intended to address short-term fixes for actual problems, the fact that the cable industry is providing Tuning Adapters that enable consumers to access SDV programming should be sufficient to conclude this matter for purposes of the *FNPRM*.

TiVo complains about the size of the Tuning Adapter and shows a picture of a Cisco Tuning Adapter sitting on top of a larger TiVo.⁷⁹ First, as we previously noted, the Motorola Tuning Adapter is smaller than Cisco’s and is much smaller than the TiVo device, as we have

⁷⁷ ARRIS Comments at 4-5.

⁷⁸ TiVo Comments at 11.

⁷⁹ See TiVo Comments at 10 and Exhibit D, “Cisco Tuning Adaptor On Top Of TiVo DVR.”

shown in Exhibit B. Second, TiVo actively markets a Western Digital Hard Drive to its customers for use with its devices whose size is comparable to the Cisco Tuning Adapter, as shown in the side-by-side photograph we have attached as Exhibit C. Third, and most important, the fact that Tuning Adapters work is much more important than their size. As we previously explained, the reason they are their current size is because they have not been needed in sufficient volume for their manufacturers to justify the cost of designing a new smaller form factor.⁸⁰

TiVo tries to compare Tuning Adapters to a device that AT&T once required for third-party telephone equipment, and suggests that cable operators should not similarly be permitted to require the use of Tuning Adapters as an interface between TiVo users and the outside world. But as TiVo's comments explain, TiVo already can and does use an IP channel (typically over a cable operator's broadband connection) to request Internet-based content, such as from Netflix.⁸¹ TiVo does not need any permission from cable operators or new regulation to be able to engage in such two-way communication. What TiVo's proposal seeks is to force cable operators to engineer and deploy a new pathway to their headends that will accept communication from third-party devices. TiVo's Exhibit F suggests that the solution is at hand. In fact, TiVo's approach presents numerous unresolved issues including the security and authentication issues outlined in NCTA's comments, and the establishment of myriad new standards and protocols to address the wide variety of equipment in use by various cable operators for SDV, location discovery, authorization, publication, and back-office communication, as detailed in Cisco's comments.⁸² TiVo's two and one-quarter page Exhibit F outlining the technical details of its proposal does not

⁸⁰ See NCTA Comments at 43.

⁸¹ See TiVo Comments at 12-13.

⁸² See NCTA Comments at 44-45; Cisco Comments at 6-7.

address these critical holes. Cisco's comments estimate that 30-42 months would be required to implement TiVo's proposal,⁸³ and even that schedule assumes resolution of the technical uncertainties that now exist.

For these reasons, ARRIS, whose Moxi retail device customers use Tuning Adapters today, cautions against such an expensive disruption and distraction. It explains that:

mandating an entirely new approach creates a real risk of doing more harm than good. Any alternative approach would need to be evaluated for the incremental investment it demands of operators and suppliers alike, along with operator implementation costs and risks. Given the success ARRIS has had with consumer education regarding installations of the Tuning Adapter, ARRIS does not believe that the Tuning Adapter issue is serious enough to distract from the more important task of developing next-generation gateway solutions for the home. As the Commission has suggested in its companion *AllVid NOI*, home gateway solutions hold real promise for consumers and for the Commission's navigation device goals, and industry efforts should be focused there.⁸⁴

Therefore, an IP backchannel "solution" for SDV-delivered signals is truly a solution in search of a problem. Indeed, Public Knowledge makes explicit what has always been implicit in TiVo's proposal – that the real reason that the costly IP backchannel approach is being proposed is to jerry-rig one-way devices to access on-demand and interactive content without using the approach agreed to by the major consumer electronics manufacturers and cable operators in the tru2way MOU.⁸⁵ UDCPs were never intended to access two-way, interactive services,⁸⁶ and the Commission should reject the attempt by some to end-run the agreed-upon, market-based process for providing two-way functionality under the guise of providing access to SDV-delivered programming.

⁸³ See Cisco Comments at 10.

⁸⁴ ARRIS Comments at 4-5.

⁸⁵ See Public Knowledge Comments at 18 (stating that without the proposed return path, "third party devices have no access to [the cable operator's] on-demand and interactive content").

⁸⁶ See *Oceanic Order*, ¶ 11 ("Our UDCP rules were not intended to provide access to bi-directional services or to freeze all one-way cable programming services in perpetuity.").

Finally, Public Knowledge implicitly concedes that the TiVo IP backchannel approach is not ready for prime time even if it were necessary to consider an alternative to the Tuning Adapter. In that regard, it urges the Commission to “seek data” regarding the percentage of retail navigation device users that have their televisions attached to an active broadband service if a connection to the Internet is needed to support TiVo’s proposal – which it is. The fact that Public Knowledge concedes that more information is needed before considering the merits of the TiVo proposal demonstrates that TiVo’s scheme is not ready to be considered for incorporation into the Commission’s rules. There may well be creative IP solutions and technological designs for interactive services, but they should be addressed for all MVPDs in the AllVid *NOI*, not in this short-term proceeding.

IV. CONCLUSION

The additional rules proposed by TiVo, CEA/CERC, and Public Knowledge are unnecessary to address the issues raised in the *FNPRM*. Moreover, they would frustrate, rather than further, the Commission’s longer-term effort to establish a new navigation device framework that enables consumers to use retail devices with all types of MVPDs.

The Commission should therefore only adopt the rules proposed by NCTA, which strike the best balance among improving consumers’ experience with CableCARDs, reducing unnecessary costs of the integration ban borne by consumers, and prioritizing engineering and other resources for the framework of the future that will be developed through the *NOI*.

Respectfully submitted,

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Exhibit A

Timeline of Cable Industry Support for CableCARDs

2000

- The cable industry supports FCC's requirement to develop and provide separate security modules.

2002

- Cable operators and major consumer electronics manufacturers negotiate the landmark "plug and play" agreement for UDCPs and submit it to the FCC for implementation, resulting in FCC rules facilitating the development and commercial availability of UDCPs and enabling retail devices to access cable's scrambled services on any system in the country that is subject to the Commission's "plug and play" rules.

2003

- FCC adopts implementing regulations for UDCPs with extensive cable support.
- Cable expands Go2Broadband to cover video. Go2Broadband is a free Internet-based electronic commerce tool that enables CE manufacturers and retailers to identify a customer's local cable operator and services available so they may recommend compatible hardware to the customer.

2004

- CE manufacturers develop one-way "plug and play" products.
- Cable develops and implements consumer education and internal training for "plug and play" UDCPs. Cable and CE create informal troubleshooting mechanisms to effectively handle the field issues that inevitably arise with start-up technologies.
- CableLabs provides free lab time to CE manufacturers for product development. Thirty major manufacturers of digital televisions and related products utilize CableLabs' state-of-the-art testing facilities, including headend equipment, test tools, and personnel to help evaluate and develop their CableCARD-enabled products.
- Cable operators open their own test labs to assist CE manufacturers in the development process. Cable operators provide extensive technical and developmental support to CE manufacturers.

- Fifteen digital television manufacturers are certified under the testing process. (Eventually 29 CE manufacturers have over 600 models of televisions and other video devices certified or verified for use with CableCARD.)
- Cable operators cultivate direct relationships with large and small CE retailers.
- Samsung signs OCAP/tru2way Agreement for bi-directional devices.

2005

- Cable industry works with Microsoft to create CableCARD-enabled connection to personal computers (PCs) and approval of associated Digital Rights Management systems for protection and handling of content.
- LGE and Panasonic sign OCAP/tru2way Agreement for bi-directional devices.
- Samsung develops bi-directional DTV, which gains certification.

2006

- Microsoft CES booth and keynote feature CableCARD-enabled “digital cable ready” personal computers that receive one-way cable programming, including high-definition premium digital cable content without set-tops.
- Working with TiVo and other manufacturers, CableLabs issues Multistream CableCARD specifications to allow simultaneous recording and viewing of premium cable content from a single CableCARD. Proposed rules are submitted to the FCC. Multistream CableCARD vendors certified.
- UpdateLogic and CableLabs sign agreement to allow UDCPs to be updated via over-the-air digital broadcast television stream.
- Cable industry develops the Java-based tru2way middleware solution to permit portability of interactive applications used on cable systems through a nationwide common software platform. CE industry helps write and rewrite the specification and the test suites to assure their compatibility with CE and multi-function CE devices.
- The cable industry, over a dozen independent CE companies, and more than 50 other equipment, application, and implementation vendors invest years of effort and millions of dollars to develop and improve the tru2way middleware solution, including multi-mode function for CE to present cable content with a CE interface. Later, Intel agrees to put the resulting technology in its system-on-a-chip architecture.

- The tru2way middleware solution becomes an ITU standard. (It is also an SCTE/ANSI standard.)
- Major CE manufacturers sign licenses to implement the tru2way middleware solution.
- LG Electronics, Panasonic, and Samsung voice their support for tru2way middleware at CES 2006.
- Samsung announces the deployment of working certified two-way OCAP-based DTVs with Time Warner Cable in a North Carolina test market.
- Panasonic and Samsung each announce the industry's first agreements for the manufacture and deployment of Comcast's new series of tru2way digital cable set-tops.
- Successful tru2way interoperability lab working sessions held with more than fifty companies, including vendors of Headend/Servers, Tools, Applications, Implementations and major content suppliers such as Walt Disney-ABC and Showtime.
- CE manufacturers begin to retreat from manufacturing UDCPs in favor of ClearQAM TVs.

2007

- Cable industry completes work in helping to establish a worldwide patent pool for making tru2way intellectual property available on reasonable and non-discriminatory terms.
- The cable industry redesigns its leased set-top boxes to rely upon CableCARDS.
- TiVo exhibits its TiVo Series 3 HD Digital Media Recorder with dual CableCARDS at Consumer Electronics Show, allowing consumers to watch one program while recording another on a CableCARD-enabled TiVo.
- Cable operators enter into cooperative development agreements with CE manufacturers for the development of advanced retail devices.
- Cable industry works with TiVo to develop and deploy a "tuning adapter" to help TiVo devices built exclusively as "one-way" receivers to operate as "two-way" cable devices for the tuning of SDV-delivered signals.
- LGE develops bi-directional DTV, which gains certification.

2008

- The cable and consumer electronics industries negotiate the tru2way MOU, enabling consumers to purchase innovative “two-way” digital televisions and other devices that can receive interactive digital and high-definition video services without a set-top box. Contract also resolves the complex business terms surrounding the deployment of tru2way, “common reliance,” certification, innovation, protection of consumers’ experience and investment, content protection, and CableLabs standards setting processes. Signatories include Sony Electronics, Panasonic, Samsung, LGE, Funai, Intel, ADB, and Digeo.
- The cable industry creates development tools and support for bringing two-way tru2way DTVs to market. CableLabs provides a free open source tru2way Reference Implementation. Multiple sources provide commercial implementations of tru2way and Software Developers Kits (“SDKs”). CableLabs provides development lab time to almost every manufacturer of “plug and play” TVs.
- Cable operators open their own test labs to assist in the tru2way development process.
- Cable operators purchase software stacks and OEM set-tops from new CE suppliers. Cable industry now buys from growing number of competitive consumer electronics manufacturers, including Pace, Motorola, Cisco, Thomson, Evolution Broadband, Samsung, Panasonic, TiVo, and ARRIS (Moxi).
- Cable operators port interactive applications to the tru2way platform, including multiple guides, multiple VOD applications, switched digital video applications, interactive advertising, Caller-ID on TV, email viewers, on-screen subscriptions, and even the TiVo interface.
- The cable and CE industries conduct regular “tru2way summit” meetings.
- Tru2way TVs launched publicly in retail stores with promotional rebates.

2009

- Cable operators roll-out tru2way set-top boxes and platform across the industry.
- Manufacturers of tru2way equipment and developers of tru2way applications hold successful “interop” to test new applications and devices on the tru2way platform.
- CableLabs works closely with CE manufacturers to streamline the certification process so that products can get to market as quickly as possible. CableLabs now provides certification testing on-demand every week; development lab time and interoperability events to any interested manufacturer; short-form test certification; and a path to self-certification.

- CableLabs creates a new Founders Advisory Board composed of representatives of the cable television, content, consumer electronics, and information technology industries, with a formal role in requesting a vote on specification changes that raise costs without adequate justification.
- CableLabs technology licenses and processes are reformed pursuant to the tru2way MOU.
- CableLabs invites the addition of new recordable digital outputs and content protection technologies, either through a CableLabs process or directly through motion picture studio agreements, with specific rights to appeal to the FCC.

2010

- Cable industry proposes consumer principles supporting the Commission's goals for retail availability of navigation devices.
- The ten largest traditional cable operators deploy their 21 millionth CableCARD-enabled set-top box.

Exhibit B

**Comparison of TiVo HD (bottom) and
Motorola Tuning Adapter (top)**



Exhibit C

**Comparison of Western Digital Hard Drive Marketed by TiVo (left)
and Cisco Tuning Adapter (right)**

