

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

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The National Cable & Telecommunications Association (“NCTA”) hereby files its reply comments on the Third Further Notice of Proposed Rulemaking in the above-captioned proceeding. The cable industry is absolutely committed to make the broadcast digital transition a success for our customers and the Commission, as evidenced most recently by last week’s launch of a massive public education campaign unmatched by any other affected industry.¹ As part of that commitment, we are determined to do our part to help the Commission in ensuring that two-way, “digital cable ready” equipment is widely available to consumers in advance of the February 17, 2009 date for the broadcast digital transition. To that end, we are committed to providing timely and vigorous support for the OpenCable Platform solution that will give two-way “digital cable ready” equipment every opportunity to succeed in the market in advance of the broadcast digital tradition.

¹ “Cable Launches \$200 Million Digital TV Transition Consumer Education Campaign,” September 6, 2007, available at <http://www.ncta.com/ContentView.aspx?hidenavlink=true&type=reltyp1&contentId=4358>; “NCTA DTV-Transition Campaign Wins Plaudits From Lawmakers,” MULTICHANNEL NEWS, September 8, 2007, <http://www.multichannel.com/article/CA6476623.html>.

EXECUTIVE SUMMARY

The OpenCable Platform is the only clear and practical path for achieving retail availability of bi-directional digital cable devices in time for the broadcast digital transition. It is the only solution on which committed consumer electronics (“CE”) manufacturers, the cable industry, and content suppliers agree. Through OpenCable, consumers can enjoy not only video-on-demand (“VOD”) and electronic program guides, but existing interactive services such as Start Over™, Quick Clips, news and information tickers, Caller ID on TV, DVR programming via cell phone, instant polling/voting, games, interactive programming, interactive advertising, shopping, and future television enhancements on leased and retail devices, including the possibility of first-run movies in early release windows.

OpenCable is being commercially deployed in headends and new interactive products today. Comcast, Time Warner, Cox, Cablevision and Advance-Newhouse will have completed the rollout of OpenCable to headends in all of their systems in time for the holiday 2008 season and ahead of the February 2009 broadcast digital transition. Taken together, this would represent over 91 million homes passed in 145 Designated Market Areas (“DMAs”) that will be able to access the OpenCable Platform.

CE industry leaders Samsung, LG, and Panasonic support OpenCable. OpenCable DTVs produced by Samsung and LG have already been certified for retail manufacture and distribution, and Panasonic has announced its 2008 plans for retail OpenCable digital devices.

MPAA, Disney, Fox, Warner Bros., Paramount, Universal, and Sony Pictures support OpenCable as providing the security environment essential for bringing high value, high definition content to consumers. If adopted as proposed, OpenCable will allow all parties the essential freedom to innovate in headends, networks, devices, services, programming and

features, rather than attempting to codify a particular technology into static government regulations at the cost of bringing innovation to consumers.

By contrast, DCR+ would disable the very interactive service features that cable customers expect and it would effectively stifle competition by foreclosing cable operators from offering to all their customers enhanced features to differentiate their services. DCR+ devices would disable the very features that make digital two-way cable products enticing to consumers and can help usher consumers into the digital transition. Moreover, adopting DCR+ would engender considerable customer confusion. A consumer who owned three different models of DCR+ televisions would have no assurance that any one of them would receive the same services from the same cable subscription. Indeed, CEA is repeating the same mistake it made with one-way “cable ready” devices, dismissing as too “advanced” the innovative features that will be expected by consumers well before a DCR+ could ever hit store shelves.

DCR+ would leave intellectual property at considerable risk for misappropriation, whereas the OpenCable Platform, developed in coordination with the content industry, ensures the requisite content protection. The CEA proposal would legitimize the illegal use and distribution of content in ways that uniquely prejudice cable customers. CEA’s approach works at cross purposes with major government initiatives to protect the creative content of studios as a unique and valuable American asset. By requiring that unsecured and unapproved outputs be kept open across the cable network, DCR+ would inhibit content suppliers from making early release movies and other high-definition content available to cable customers.

Through systemic technical errors, oversights and omissions in its design, DCR+ would limit the ability of law enforcement to perform lawful intercepts of cable’s voice and data services, increasing the likelihood that surveillance will miss the target and be directed to an

innocent customer. For example, DCR+ makes no provision for a secure software download -- a key authentication measure used to ensure the end-to-end integrity of cable-delivered video, high-speed data and IP-based voice services. Without secure software download, the cable modem in a DCR+ device would be unprotected against the distribution of undetectable rogue software that can be easily downloaded over the Internet. These design mistakes would undo years of work by the cable industry, the FBI, and the Commission, undercutting a suite of anti-pretexting rules that protect the security and integrity of the cable platform and the privacy of our voice and data customers.

The CEA proposal limits enhanced consumer services to the lowest common denominator rather than creating a technical environment that fosters innovation. The CEA proposal is an astonishingly intrusive proposal. CEA would require 20 percent of cable customers to limit reception of their services on cable-supplied set-top boxes to what a DCR+ can do and then forbid them from upgrading their set-tops as technology advances. CEA would shift to cable operators the practical costs of developing and deploying DCR+ devices: costs of a major redesign of every part of cable architecture, including VOD, guides, DVRs, leased set-top boxes and entirely new CableCARDS with radically different capabilities, resources, and form. The costs will be suffered by cable customers even if no DCR+ devices are ever built. CEA even seeks Commission “earmarks,” like free cable carriage of software and firmware to CE devices rather than relying on their existing commercial paths for patches and upgrades. It would delay the deployment of almost every new cable service offering in ways that are uniquely prejudicial to cable providers and cable customers while leaving all of cable’s competitors (and their customers) under no comparable constraints.

For all of this, the CEA proposal offers not even the slightest hope of serving the broadcast digital transition. This is CEA’s third try at crafting a proposal since the Commission’s request for a comprehensive solution nearly two years ago, and CEA still offers *no* functional specifications, *no* standards, *no* intellectual property clearances, *no* prototypes, and *no* firm and enforceable commitment by *any* CE company to build anything that would meet the DCR+ concept. CEA’s proposal is a lobbying tract, not a practical solution.

We respectfully request that the Commission facilitate the OpenCable Platform, with reasonable and limited regulations as proposed, as the only practical approach to “two-way” and to encouraging consumers to migrate to digital in time for the broadcast digital transition. The Commission should also invite the cable industry, other multichannel video programming distributors (“MVPDs”), and other interested parties to work together on an “all-MVPD” solution.²

I. THE OPENCABLE PLATFORM PROPOSAL IS THE ONLY REALISTIC MEANS OF ASSISTING THE BROADCAST DIGITAL TRANSITION

The development of a retail market for interactive cable-ready navigation devices in time for the broadcast digital transition in 2009 can only succeed with the committed support of three mutually interdependent industries: cable operators, consumer electronics manufacturers, and content owners. Without support from each one of these three legs, cable customers – representing the largest percentage of television viewers in America – will not be able to access the high-value content (including high-definition programming) that would drive them to purchase new digital televisions.

² NCTA is not seeking to impose cable technology on other platforms. We are proposing a constructive approach in which consumer devices can work on all MVPD systems, yet still allow MVPD networks to select their own technology, differentiate themselves, and use different network-specific devices to make their services available by connecting to a common interface on a digital television.

Only one proposal now before the Commission has clear support from each of these three industries: the OpenCable Platform. OpenCable is the only clear path on which committed CE manufacturers, the cable industry, and content suppliers agree as the one practical approach for achieving retail availability of bi-directional digital cable devices in time for the broadcast digital transition. It is the one path that provides realistic opportunities for all participants to meet their essential business needs. The OpenCable Platform provides a comprehensive solution that allows CE manufacturers to incorporate two-way set-top functionality inside digital televisions and other retail devices. The OpenCable Platform is the only solution that allows consumers the ability to access the constantly-evolving suite of interactive services from cable operators and content providers that will entice them into the digital world.

NCTA presented a comprehensive OpenCable solution to the Commission in November 2005. The cable industry has worked hard to follow through on its proposal and has undertaken significant investment, conducted considerable research and development, and worked to coordinate with related industries to make the OpenCable Platform one that fosters continual technological innovation, while providing the necessary framework for retail manufacturers to develop products that can work successfully with cable systems. In complete contrast to the DCR+ notion, the OpenCable Platform is incorporated into published specifications, approved by standards bodies, cleared for intellectual property, available as real commercial implementations, licensed to major consumer electronics manufacturers through commercially-accepted license agreements, incorporated into retail digital televisions, tested in those televisions, certified for manufacture and retail distribution, in use in cable television headends, and is being deployed to consumers today in advanced set-top boxes.

A. The OpenCable Platform Helps Migrate Consumers into the Digital Transition

The OpenCable Platform is a technological breakthrough for consumers, cable operators, CE manufacturers and retailers, and interactive content providers. It is an innovative national software platform that enables cable's two-way services and the interactive programming enhancements of creative programmers to work on the vast array of different cable systems, set-top boxes supplied by cable operators, and two-way "digital cable-ready" retail devices.

The OpenCable Platform solution makes sense of the wide variety of technologies, headends, network equipment, peripherals, software, and applications in use by cable television systems today for the delivery of their ever-evolving services. OpenCable can "translate" any application written to the OpenCable interface so that it can run on any underlying operating system. Using the OpenCable specifications, content developers can write interactive applications that will work on all OpenCable-ready cable systems and then run on any device – retail or leased – that supports the OpenCable Platform.

The OpenCable Platform is the only solution capable of delivering to consumers the suite of interactive digital services offered on cable *today*, while offering the opportunity for widespread innovation tomorrow. Through OpenCable, consumers can enjoy existing and future interactive services such as video-on-demand, Start Over™,³ Quick Clips,⁴ interactive electronic program guides, games, news and information tickers, interactive digital programming, interactive advertising, shopping, and other television enhancements on leased and retail devices.

³ Start Over™ is a new digital cable feature that allows customers to tune into a show midway, then by pushing a button on their remote control, re-start the show from the beginning without using a digital video recorder.

⁴ Quick Clips is a new digital cable feature that allows customers to easily access short-form video content, including content produced for the Internet, on their televisions. The initial launch of Quick Clips is available on CNBC, CNN and The Weather Channel. Viewers are alerted to this feature by an onscreen prompt notifying them that enhanced television features are available on the currently-viewed channel. By pressing "Select" on the remote, the viewer can to jump to the desired Quick Clip.

For example, through interactive digital programming, a programmer can provide consumers with expanded information about characters, background or history; participation in virtual communities through polling and voting; and interactive links that connect consumers to promotions or shopping. New interactive services can also include more powerful customer service applications that provide interactivity for all aspects of customer care and communication, such as FAQs on demand and interactive account management. These are the kinds of features that will make two-way digital cable products enticing to consumers and help usher consumers into the digital world. As MVPDs compete vigorously with new features and cross-platform services, these features will become even more compelling.

Consumers should reap the full benefit of such innovation, which will foster competition among MVPDs. The OpenCable Platform enables all of these features, ensuring that consumers enjoy not only the cable services they want and pay for today, but that they can also receive future innovative services, such as Look Back™,⁵ as they are introduced. The CEA proposal would not allow such features and services to appear on “DCR+” devices, blocking the most promising path for migrating consumers to digital.

As we stated above, for two-way, digital cable ready” devices to have an opportunity to succeed in the marketplace, at least three elements are critical: (1) committed, national deployment by the cable industry of the OpenCable technology; (2) the substantial support of the leading consumer electronics manufacturers, and (3) the support of content owners. As detailed below, the OpenCable Platform solution has all three.

⁵ Time Warner Cable plans to introduce a time-shifting service called Look Back™ where viewers can tune into prior episodes or watch certain shows later on that they missed, just the way a digital video recorder does, but without a DVR. *See* Louise Story, *A Variation on the DVR, Without Ad Skipping*, N.Y. TIMES, Aug. 13, 2007.

B. The OpenCable Platform Is Being Commercially Deployed Today

The OpenCable Platform solution is not a mere “proposal”: it is being commercially deployed in headends and new interactive products *today*. It is inconceivable that Sony could tell the Commission that that is not the case.⁶ Our comments detailed how Time Warner has deployed the OpenCable Platform in 41 headends, how Comcast and Cox are in commercial trials with OpenCable in a half-dozen more markets, and how more than 100,000 OpenCable set-top boxes have already been deployed to consumers. In NCTA’s 2005 proposal, we proposed complete deployment by July 1, 2009. *Today, given the Commission’s emphasis on the imminence of the broadcast digital transition, we have accelerated the rollout of the OpenCable Platform.*

Comcast, Time Warner, Cox, Cablevision and Advance-Newhouse will have completed the rollout of OpenCable headends to their systems in time for the 2008 holiday season and ahead of the February, 2009 broadcast digital transition. These cable operators alone represent over 91 million homes passed in 145 DMAs that can readily access the OpenCable Platform.⁷ We have accordingly adjusted our 2005 proposal and proposed regulations (attached here as Exhibit C).⁸ It is critical to note that any additional requirement to support the CEA proposal in addition to the OpenCable Platform would significantly extend the transition period. Thus, the

⁶ Sony Comments at 12. Sony’s comments are replete with similar misinformation. Sony notes that it offers a specific navigation tool (its cross-media bar) that can be called up on screen and allow a user to select from among different inputs to a television. It then claims that the tool cannot operate properly under the OpenCable Platform rules. In fact, under the OpenCable Platform rules, such a navigator would operate exactly as Sony’s Blu-Ray Player now works with high definition movies: the cross bar navigator can be used to choose inputs, and then the entertainment environment of the HD movie (including any embedded interactive attributes) is displayed in full once the program has been selected. Similarly, once cable is chosen from the cross bar navigator, the cable service (including interactive programming) would run.

⁷ See Exhibit B hereto.

⁸ The revised dates advance the date for the largest operators, and provide a closing date for smaller operators of 24 months following Commission adoption of rules implementing the OpenCable Proposal. This is less transitional time than was provided in the 2005 proposal. Waivers may be granted for small systems, financial hardship, and in other appropriate circumstances.

first leg of the necessary three legs for a retail market is here: committed, national deployment by the cable industry of the OpenCable technology.⁹

C. The OpenCable Platform Is Ready for Retail

Retail CE manufacturers are also bringing OpenCable to market. The world leader in HDTVs (Samsung), the maker of the best-selling plasma TVs (Panasonic), and the world's largest producer of flat-panel displays (LG) have all agreed to the OpenCable Platform. Panasonic has used this docket to announce its planned 2008 launch of retail OpenCable digital television equipment. Samsung has explained that the OpenCable Platform is the most fully developed solution: it is deployed by cable, supported by substantial investments by cable operators and CE manufacturers, and works across the wide array of cable systems and cable services.¹⁰ LG has similarly praised the OpenCable Platform as a key element for "digital cable services [that] will represent both a tremendous benefit for consumers and a significant business opportunity for our retailers."¹¹

Sony—the draftsman of CEA's DCR+ proposal—goes to great lengths to claim that there are issues of incompatibility and immaturity with the OpenCable Platform.¹² There can be no

⁹ There is a marked contrast between the cable industry's substantial commitment to fostering the commercial availability of cable navigation devices versus the direction of DBS operators to restrict such commercial availability. *See* NCTA Comments at 73.

¹⁰ Samsung Comments at 1-3 ("It is noteworthy that both proposals share a crucial element in common—a recommendation that the Commission require cable operators nationwide to deploy the OpenCable Application Platform ("OCAP"). Whatever else the Commission does in this proceeding, the Commission should rapidly adopt this recommendation by both organizations. OCAP is the furthest-developed standard for CE device compatibility with interactive digital cable services and the only one that has already begun to be deployed by cable operators. ... Cable systems differ widely, and it is impracticable for a cable-ready device to incorporate all of the diverse software used across cable systems nationwide. OCAP offers the capability to bridge this divide in a uniform manner, so a cable-ready device that a consumer purchases could still be used if the consumer moved to a different cable system. Such nationwide portability is essential for a retail product to be accepted in the consumer market.")

¹¹ *See* LG-CableLabs Press Release, "LG Electronics Signs CableLabs Licenses for Two-Way Digital Cable Products," Jan. 6, 2005, ("Next-generation consumer electronics products that access interactive digital cable services will represent both a tremendous benefit for consumers and a significant business opportunity for our retailers," said Dr. Hee-Gook Lee, Chief Technology Officer, LG Electronics, ("Moving ahead with the OCAP agreement allows us to work closely with CableLabs and the North American cable industry on exciting interactive applications now, while continuing to work in parallel on the Interactive Digital Cable Ready technologies related to the future bi-directional plug-and-play digital cable standard."), available at http://www.cablelabs.com/news/pr/2005/05_pr_ocap_010605.html.

¹² Sony Comments at 13. Sony claims that OpenCable should be considered immature because its specifications, though "Issued," have not been "Closed." In CableLabs specifications, an "Issued" document is "a stable document,

better evidence to the contrary than the agreements of industry leaders Samsung, Panasonic, and LG: OpenCable is obviously practical for retail, because major retail manufacturers are using it. LG and Samsung are ranked number one and number two in the world in global television sales.¹³ Samsung is the world leader in LCD digital television sales, and the two companies together with Panasonic have a 70% share of the market for plasma digital televisions.¹⁴

As for other CE manufacturers, Sony, Mitsubishi, Philips, Pioneer, Hitachi, JVC, Sharp, Thomson, Toshiba, Zenith, and the rest of CEA's Video Board *all agreed in writing at the Commission* to use the OpenCable platform middleware in advanced cable devices.¹⁵ Although some of these manufacturers may not wish to follow through, the cable industry continues to offer *all* of them the opportunity for what CEA calls "common reliance" on OpenCable. In the meantime, the substantial support of those CE industry leaders mentioned above adds a second leg of support to the OpenCable solution.

which has undergone rigorous member and vendor review and is suitable for product design and development, cross-vendor interoperability, and for certification testing." "Issued" specifications are always and only moved to "Closed" after a replacement specification has been "Issued." The new specification becomes the future roadmap and the movement to the "Closed" status serves as a warning to implementers that new products presented for certification should be moved to the more current specification. For example, DOCSIS-1.0 was "Closed" in January 2001, after DOCSIS-1.1 specifications were "Issued" in March 1999. This was a signal that DOCSIS-1.0 was at end-of-life and the industry and our members were moving to DOCSIS-1.1. Subsequently all manufacturers halted production of DOCSIS-1.0 products. DOCSIS-1.1 was "Closed" in mid-2005, which was after the DOCSIS-2.0 specifications were "issued." Shortly after (September 2005) CableLabs certified the last DOCSIS-1.1 product and the industry moved to DOCSIS-2.0. Specifications certainly do and should evolve. These definitions appear on the face of CableLabs specifications, and are well known to Sony and other participants in CableLabs processes. Sony never specifies what it claims is "reportedly incompatible" between the 1.0 and 1.1 specifications. The 1.1 version of OpenCable reflects *agreements with the CE industry, including Sony*, on how retail devices can best share device resources.

¹³ iSuppli Television Systems Market Tracker - Q3 2006, summarized at <http://www.digitaltvdesignline.com/news/193005663>.

¹⁴ DisplaySearch report (August 2007), summarized at <http://www.tvpredictions.com/samsung082007.htm>.

¹⁵ The CE industry agreed as part of the one-way Memorandum of Understanding that "Cable operators' EPG will be provided for advanced interactive digital cable products via OCAP [the OpenCable Platform] or its successor technology." CS Docket 97-80, Further Notice of Proposed Rulemaking, 18 FCC Rcd 518, 548 (2003) (Exhibit B at 10). Sony, Mitsubishi, Philips, Pioneer, Hitachi, JVC, Panasonic/Matsushita, Samsung, Sharp, Thomson, Toshiba, Zenith, and the rest of CEA's Video Board were parties to the agreement. *See also* CS Docket 97-80, Joint Status Report of the Consumer Electronics Association and the National Cable & Telecommunications Association (Oct. 14, 2005) at 2 ("The parties have agreed to proceed on the basis that interactive Digital Cable Ready devices (iDCRs) will use the OpenCable Application Platform (OCAP).").

D. Content Providers Agree That the OpenCable Platform Provides the Environment Required to Bring Better Programming to Consumers

The third essential leg to any solution to bring high value (and high definition) cable content to consumers is the support of the content owners. Cable operators, DBS providers, and telephone companies have to *negotiate* to obtain distribution rights from content creators and providers. If cable cannot successfully obtain high-value programming from content owners, consumers would not have a compelling reason to purchase new interactive digital televisions before the DTV transition.

When MPAA, Disney, Fox, Warner Bros., Paramount, Universal, and Sony Pictures all agree that an MVPD environment that does not include specific security tools will end up depriving consumers of desirable content, they cannot be ignored.¹⁶ MPAA and its member studios explain that an MVPD environment must include:

- comprehensive device testing;
- selectable output content protection;
- redistribution control; and
- careful review mechanisms for new content protection technologies and new digital outputs proposed for handling creative content.¹⁷

Based on these criteria, MPAA and its member studios (including Sony Pictures, Disney, Warner Bros., Paramount, and Fox) have endorsed the OpenCable Platform as providing a secure environment and security tools to bring even better programming to consumers.¹⁸ By contrast,

¹⁶ MPAA Comments at 2 (“To ensure that consumers who use bidirectional digital cable products continue to have access to existing and future high value content, that content must be protected at least as well as it is on competing platforms. Content owners simply cannot afford to make their valuable content available to consumers in formats that cannot ensure that the content is protected against misuse.”).

¹⁷ MPAA Comments at 7-24.

¹⁸ MPAA Comments at 24 (“The OpenCable Platform satisfies many content provider concerns by providing bidirectional devices with an industry-wide software platform that includes modern tools of interactive content

MPAA and the studios noted that the DCR+ proposal failed to include any of these necessary requirements.¹⁹

There are many reasons why MPAA would like cable operators to implement OpenCable rather than the insecure DCR+ proposal:

- The OpenCable Platform provides for the comprehensive formal device testing the studios seek. That testing was developed at CableLabs, one of the few successful industrial research and development facilities left in the United States. CableLabs based the program on the enormous success of DOCSIS testing that brought broadband deployment and low-cost leased and retail modems, and on the PacketCable program which brought consumers inexpensive and competitive voice-over-IP services. OpenCable testing has already certified both Samsung and LG Electronics digital televisions for retail manufacture and sale.
- The OpenCable Platform provides the most modern content protection tools, including the “selectable output” tool needed if consumers are to enjoy the convenience of watching early release content on cable, rather than driving to and from a video store.
- The OpenCable Platform provides for the review mechanism studios want and in which they participate when new content protection technologies and new digital outputs are proposed for handling creative content.²⁰ Working with Sony Pictures, Paramount, Warner Bros., and Disney, as well as the “5C” companies (Sony, Intel, Panasonic, Toshiba and Hitachi), CableLabs recently approved IP-based home networks for creative content carried on cable—on terms the studios approved as respecting their rights as content providers and the rights of cable as distributors. Cable is not, despite some rhetoric to the contrary, controlling downstream devices; rather, cable is opening up cable programming to home networking on a wide array of retail devices, including PCs.

delivery, presentation and protection, all of which can be exercised through marketplace negotiations, subject to any rules that the FCC may promulgate. Further, the OpenCable Platform provides studios with a meaningful role in the approval of new outputs and content protection technologies, and it utilizes comprehensive testing that helps protect consumers. As presently formulated, the OpenCable Platform is dynamic, allowing industry parties to pursue innovative business models and specifications in a rapidly evolving marketplace.”)

¹⁹ MPAA Comments at 24 (“Given that the CE industry has not yet provided a detailed explanation of content protection features offered by its proposed system, MPAA cannot comment on its efficacy.”)

²⁰ Under its output approval process for Unidirectional Digital Cable Ready Products (“UDCPs”), CableLabs has approved specific technologies that enable PCs and home networks to access, display, and store cable content. For example, Windows Media DRM enables PCs to access cable content and display it throughout a home network, and Philips-HP’s Video Content Protection System allows cable content marked as “copy once” to be burned onto VCPS-enabled DVD+R and DVD+RW optical digital media, which may be used in PCs. CableLabs recently approved Digital Transmission Copy Protection (DTCP-IP) technology for protection of cable content using Internet Protocol for both unidirectional and bidirectional digital cable products. Using DTCP-protected secure links among consumer electronics devices, cable subscribers will be able to enjoy digital cable programming, including high-definition and VOD cable content, on consumer electronics devices and personal computers on digital home networks.

- The OpenCable Platform recently added both a redistribution control trigger that enables cable to use proximity controls to protect high-value content from redistribution outside the subscriber’s home and messaging to signal the revocation of compromised devices.

The backing of content suppliers, therefore, is the third leg completing the essential marketplace support for the OpenCable solution. With the support of cable operators, content providers, and leading CE manufacturers, the OpenCable Platform is the solution most consistent with Congress’ directive in Section 629, and is the most practical approach towards delivering retail bi-directional cable devices in time to facilitate the broadcast digital transition. With OpenCable, the cable industry is committed to making available to consumers—and all CE manufacturers who chose to make products for them—the opportunity to buy retail digital cable ready devices capable of receiving all of cable’s bidirectional cable services.

The market will of course stand or fall based on consumers’ appetite to buy such devices in today’s marketplace, marked by rapid technological innovation and vigorous facilities-based competition. As we discuss in Part IV, a solution that addresses only the cable market may not be the best choice in today’s vibrantly competitive video marketplace. But if the Commission seeks a solution for retail availability of *cable* devices, then the OpenCable Platform provides the best opportunity to launch such products with the ability to receive the actual cable services that customers want and pay for.

E. TiVo Displays a Profound Misunderstanding of the OpenCable Platform

TiVo’s comments catalogue supposed deficiencies in the OpenCable Platform to support its claim that OpenCable is not practical for retail devices.²¹ Of course, the support of OpenCable by Samsung, Panasonic, and LG disproves that thesis. But TiVo’s claims present a

²¹ TiVo Comments at 17.

series of significant technical misunderstandings of the OpenCable Platform coupled with serious misstatements of fact. We provide a point-by-point rebuttal here.

TiVo claim	Fact
TiVo claims that testing and certifying retail devices would be too difficult. ²² It claims that the current CableCARD specification is insufficiently complete to ensure thorough testing.	Comprehensive testing is a necessary solution, not a problem. OpenCable Platform testing has already certified both Samsung and LG digital televisions for retail manufacture and sale. Every cable modem ever sold has been certified after testing. Current UDCP testing is too limited, which has resulted in consumer problems with UDCP devices. The remedy is more comprehensive testing, not less testing as suggested by TiVo. CEA recognized this fact in the one-way MOU where the parties agreed that two-way devices would require additional testing considerations. <i>Navigation Devices FNPRM</i> , 18 FCC Rcd at 548.
TiVo contends that the OpenCable Platform was not designed or developed to support multifunction devices with non-cable related features.	CE and cable collaborated to resolve these precise issues. The product of that collaboration is included in version 1.1 of the OpenCable Platform specification.
TiVo claims that OpenCable licensing requirements prevent or interfere with the range of functions that competitive set-top boxes could otherwise offer to consumers.	TiVo has it backwards: retail devices are invited to innovate. But they are also required to present cable services and protect cable networks.
TiVo claims that the OpenCable specifications allow the cable operator, and not the CE manufacturer, to control the user interface and functionality of the retail devices used with their systems.	This is not true. The OpenCable Platform permits the cable guide to appear, but it does not prevent the operation of competing guides. A Series 3 TiVo guide could appear on a retail device exactly as it does in retail TiVo devices today.
TiVo claims that the OpenCable Monitor Application ensures that only programs authorized by the cable operator will run on an OpenCable-enabled device.	This is not true. TiVo has presented no evidence of such a practice, and version 1.1 of the OpenCable Platform specification provides exactly the opposite, allowing for Cable, CE, and crossover-mode functionality.

²² CEA similarly claims that “The CableLabs bi-directional licenses subject the licensee to a certification requirement that is at the sole discretion of CableLabs. A licensee’s product can be denied market access without any recourse or ability to bypass such a process.” CEA Comments at 12. Tellingly, CEA fails to cite any evidence that certification for cable modems or verification for UDCPs, both of which are subject to a CableLabs approval process, have been used to deny market access to any compliant product. Moreover, the Commission specifically invited parties to bring to the Commission any complaints regarding CableLabs’ certification criteria or its implementation thereof, and no party has ever done so. *See* CS Docket 97-80, Second Report and Order and Second FNPRM, 18 FCC Rcd. 20885, ¶ 39 (2003) (“Should any party have complaints regarding this implementation, or the certification test suite itself, we will consider them on a case-by-case basis.”).

TiVo claim	Fact
TiVo claims that the OpenCable licensing requirements lock out any program or innovation by a device manufacturer unless the manufacturer has a separate agreement with every cable operator. TiVo claims that VOD would be unavailable to a retail device.	This is not true. CE manufacturers may innovate as much as they like as long as they also preserve the cable experience. VOD services are available to retail devices through the OpenCable Platform. The cable industry is already running multiple VOD applications today that can be available to CE devices through OpenCable.
TiVo claims that OpenCable is not a complete or sufficient solution for device manufacturers to access cable services.	CE devices may access cable services through the OpenCable Platform.
TiVo claims that the present OpenCable specification omits critical technical elements needed for the design of competitive set-top boxes with two-way functionality.	<p>Two CE retail manufacturers have already made OpenCable DTVs which have been certified for retail manufacture and sale. The OpenCable Platform is completely sufficient to enable CE devices to access interactive cable services. Many innovative cable services are implemented in specific ways by specific cable operators. Their features, functionality, and therefore their user, network, and billing interfaces are particular to a cable system, and therefore must be supported at the application level. OpenCable solves this by abstracting those differences.</p> <p>If TiVo is seeking data <i>internal</i> to program guides, specific and standardized applications for IPPV, VOD, or switched digital, TiVo's claim is just another way of asking for DCR+ protocols, and it is missing the technical point. These are all non-standard applications from a wide variety of vendors that are abstracted through OpenCable in order to make the services available to OpenCable-enabled devices.</p>
TiVo claims that through OpenCable, the cable company controls the performance of the retail device, and a manufacturer cannot differentiate its product.	Manufacturers differentiate their products through a wide variety of features, resources, processing speed, etc. OpenCable adds one more feature to such devices. It does not remove their differentiation.

II. THE OPENCABLE PLATFORM IS THE ONLY SOLUTION THAT GIVES ALL PARTIES THE FREEDOM TO INNOVATE

A compelling consensus has emerged in the comments of network operators and others about the appropriate role of regulations in ensuring that consumers enjoy the benefits of a competitive marketplace. Even parties that do not typically agree with NCTA do agree that the

Commission should not try to freeze technology into regulations. The OpenCable Platform is the only solution that allows cable operators, cable networks, cable programming, cable services, and consumer electronics manufacturers the essential freedom to innovate, rather than attempting to lock technology into static regulations, and that gives consumers the benefit of ever evolving network, service, and programming innovations.

A. Networks Must Continue to Innovate and Rapidly Deploy Enhanced Services to Consumers

Among multiple parties who have collectively invested tens of billions of dollars in a variety of competing network facilities, there is a consensus: the Commission should not freeze technology into regulations. DirecTV (a member of CEA) submits that consumers benefit most when the Commission does not lock technology into regulations, and lets networks continuously innovate, rapidly deploying inventions like MPEG-4 and bidirectional capabilities without awaiting industry consensus, standards, or rule changes.²³

Microsoft (another member of the CEA cable working group) likewise explains that each MVPD should be able to select its particular choice of technology, and that the Commission would be making a mistake to freeze technology into regulation.²⁴ Verizon and AT&T further

²³ DirecTV Comments at 12 (“DIRECTV, for example, recently rolled out HD services (including HD local broadcast service) that are only made possible by the spectral efficiency of MPEG-4 compression. At the time, EchoStar was not yet using MPEG-4, and cable operators generally still do not use this technology. This surely would not have occurred had DIRECTV’s set-top boxes been governed by the sort of intra-MVPD negotiations required under CEA’s or NCTA’s approaches. EchoStar and cable operators would have had every incentive to ‘slow roll’ incorporation of MPEG-4 technology into a plug-and-play navigation device in order to prevent DIRECTV from capitalizing on a competitive advantage.”)

²⁴ See Microsoft Comments at 11 (“Microsoft suggests that the particular choice of technology (DCR+, CHILA, or any other) should not be the subject of regulation and is best left to individual MVPDs to determine considering the requirements of their businesses and the market.”). See also *id.* at 10 (“The Commission’s role is not to pick the technology solution for creating bi-directional cable-ready devices, but instead to take on the important job of creating a framework that enables network operators and third parties to figure out a technology solution and then implement it in a transparent and fair manner.”) We agree with Microsoft. It is because the cable industry is willing to provide the Commission and CE manufacturers with additional confidence in the OpenCable Platform that it is rapidly deploying that NCTA is proposing regulatory requirements for OpenCable support. However, as discussed below (and in contrast to the CEA proposal) these proposed requirements are carefully structured to preserve the opportunity for rapid innovation in cable networks, programming, services and devices.

explain that neither FiOS nor U-verse could have been offered had the Commission required them to design their networks in accordance with preexisting norms.²⁵ As Verizon put it, “Innovation in the deployment of video services is happening at a fantastic rate. The Commission should [therefore] not choose, at this juncture, to codify any particular technical standards” for two-way plug-and-play.²⁶

A second, corollary point of consensus has emerged around the need for continuous innovation. DBS, the telephone companies, and Microsoft vigorously endorse continuous innovation. AT&T, for example, warns the Commission against attempts to standardize new products like IPTV before they are sufficiently mature.²⁷ No one has slowed an IPTV deployment awaiting efforts to establish and standardize IP-based separable security solutions, which ATIS admits are a long way from fruition in commercially-deployed solutions.²⁸ We agree that consumers benefit most when service providers are able to launch new enhanced services without awaiting the development of an industry consensus. This is the very foundation of competition among service providers.

The two-way services at issue in this Further Notice—video-on-demand, switched digital, interactive enhancements to programming content, electronic program guides, cross platform services, and emerging interactive services—are new and in a continuous state of development. Others are yet to be created. They are not standardized, even within the system operations of a single multiple system operator. They are supplied by creative, inventive, competing vendors

²⁵ AT&T Comments at 7 (stating that it would have been “technically infeasible to impose QAM-based standards on very different wireline video systems using switched IP as their underlying technology”); Verizon Comments at 12 (stating that CEA’s technological proposals would be fundamentally incompatible with Verizon’s QAM/IP system or other newer technologies).

²⁶ Verizon Comments at 3-4.

²⁷ AT&T Comments at 9-10 (“It is far too early to preempt marketplace resolution of [technical standard] questions at this preliminary stage of development.”).

²⁸ See ATIS Comments at 5 (“The AISP.5-ISSI has set a target date of December 2008 for completion of a feasibility study related to [IPTV downloadable security] solution.”).

who use different approaches and keep improving the products. They are in turn shaped by cable operators into constantly improving service offerings for consumers. What little in cable technology is reasonably settled—unswitched MPEG-2 linear broadcast programming—has already been made available to UDCPs. The remaining cable services are new and evolving just as IPTV is new and evolving, and it would be disastrous at this stage of development, and completely inconsistent with facilities-based competition, to condition such innovation on reaching consensus within and among industries on each new application and service.

B. The Proposed OpenCable Platform Rules Allow All Parties to Continue to Innovate Rapidly

The OpenCable Platform, as proposed for Commission endorsement, retains the flexibility needed to foster innovation, as opposed to the DCR+ model that would leave the cable network and consumers frozen in time. The NCTA proposal provides detailed specifications and standards to give assurance to retail manufacturers that there will be cable headends nationwide supporting the OpenCable Platform by dates certain, so that they will have the confidence that there will be mass markets for OpenCable retail devices. But the proposed rules make clear that the underlying specifications are not ceilings and are not static. OpenCable headends and devices may continue to evolve rapidly with advances in successor specifications without regulatory barriers, as device manufacturers, cable systems, and cable services continue to evolve to meet consumer needs.

Retail manufacturers can innovate with OpenCable. The express terms of OpenCable specifications and licenses provide that CE manufacturers may add features and functionalities, have their own menus and user interfaces, include cable channels in their own guides, bring Internet content and cable content together in the same device, and create and manage their own

home networks—today.²⁹ In addition, OpenCable enables CE manufacturers to develop their own new applications and innovations that will work in cable systems nationwide. And they may also offer any of their own native features in the device, OpenCable-based or not, and include any technology they choose.

The OpenCable Platform likewise allows for both innovation and competition in programming and services. By translating all the differences among innovative interactive programs and services, and allowing them to run through “middleware,” OpenCable allows cable operators the freedom to innovate and compete with their facilities-based satellite, broadband and telephone competitors, offering new and rapidly changing interactive services that consumers should enjoy as part of the broadcast digital transition. The OpenCable Platform uses a “middleware” solution such as other advanced platforms use. AT&T, DirecTV and Microsoft each use their own middleware.³⁰ Sony’s Blu-Ray player uses middleware based on the same Java core as OpenCable.³¹ Asian and European broadcasters, manufacturers and other content

²⁹ See CHILA, § 5.2 (“Nothing in this Agreement shall preclude Licensee from including in a Host Device additional features or functionalities not specified in the OpenCable Specifications” so long as the service, network, and security is not harmed.). There is a parallel clause in the OpenCable Platform license (§ 2.7). The OpenCable Platform specification also specifically provides that retail devices may add features and functionalities, have their own menus and user interfaces, bring Internet content and cable content together, and create and manage their own home networks. See, e.g., OC-SP-OCAP1.1-I01-061229, “OpenCable Application Platform Specification,” 10.2.2.4 Environments (support for a cable environment and a manufacturer environment; Table 10–2 (Combinations of environments and states); 10.2.2.4.1 (Initiation of state transitions; permits the end-user to choose between cable and non-cable services and states); 10.2.2.5 Non-cable applications; 10.2.2.10.2 Cross-environment Mode; 19.2.1.1.6 Resource Management between Environments. Posted at <http://www.opencable.com/specifications/>. CHILA permits a variety of outputs into home networks. See, e.g., CHILA Compliance Rules § 2.4.

³⁰ See AT&T Comments at 12 (“AT&T’s middleware, DRM and software provider – Microsoft – is working on an OEM Adaptation Kit (“OAK”), that would allow third parties to build STBs [set-top boxes] or television receivers that will work with any Microsoft enabled IPTV network.”; Microsoft Comments at 12-13 (“The goal of OAK is ... to enable independent, third-parties – whether set-top box manufacturers or other IT or CE device manufacturers – to design and build navigation devices that can connect to any deployed Mediaroom-based network nationwide. The OAK will be licensable to any navigation device manufacturer making devices for use with Mediaroom IPTV networks through a licensing arrangement with Microsoft”); DirecTV Comments at 8 (“DIRECTV uses proprietary, light-footprint middleware”).

³¹ See, e.g., Product Description of Sony Blu-ray Disc Player BDP-S1, at <http://www.sonystyle.com/webapp/wcs/stores/servlet/ProductDisplay?storeId=10151&catalogId=10551&langId=-1&productId=11040237> (discussing incorporation of BD-Java support).

providers use a “sister” technology to OpenCable – Multimedia Home Platform (“MHP”). MHP has been deployed by service providers and in retail devices in Australia, Austria, Belgium, Czech Republic, Denmark, Finland, Germany, Hungary, Italy, Malta, Norway, Saudi Arabia, South Korea, Spain, and Sweden.³² This Java basis allows innovation in networks, services, and devices, without attempting to define every service or application by standard or government regulation. Some of the same CE manufacturers who have opposed OpenCable have built products conforming to the sister MHP standard in other parts of the world.

By striking the right balance between regulation and innovation, the NCTA proposal retains the flexibility needed to encourage innovation—for both the CE and the cable industries—and ensures that market-driven technology specifications are not frozen in time.³³

III. THE CEA PROPOSAL IS NOT A PRACTICAL SOLUTION FOR THE DIGITAL BROADCAST TRANSITION

Unfortunately, in pursuing advantages for some CE manufacturers at the expense of consumers, content providers and the cable industry, CEA has once again scattered nails across the road to two-way interoperability. CEA’s so-called “DCR+” proposal is a disruptive and misleading effort to dictate technical standards for cable operators. Even if CEA’s design could

³² See Multimedia Home Platform (MHP) Update, Digital Video Broadcasting, September 2006, available at http://www.mhp.org/about_mhp/who_is_using_mhp/index.xml.

³³ More than 1000 companies have already signed agreements to obtain draft OpenCable Specifications and submit engineering change requests prior to Issuance. OpenCable is open to any interested party and is inclusive of all the affected parties including CE manufacturers (for example, Acer, ADB, Daewoo, Digeo, Fujitsu, Funai, Hitachi, JVC, LG, Mitsubishi, Pace, Panasonic, Philips, Pioneer, Sampo, Samsung, Sanyo, Sharp, Sony, Thomson, Tivo, Toshiba, and Zenith), Retailers (for example Radio Shack, Circuit City and Sears), PC and IT (for example, Microsoft, Apple, IBM, Intel, HP, Gateway, Dell, Sun, and TI), Chip manufacturers (for example, AMD, Intel, Infineon, Broadcom, Cadence, Concurrent, Conexant, LSI Logic, national Semiconductor, NEC, ST Micro, ViXs, and VLSI), content providers (for example PBS, BBC, NAB, France Telecom, HBO, NBC Universal, Showtime, Starz, Walt Disney and the Weather Channel, Turner, Viacom,), VOD, SDV, Guide, and peripherals manufacturers (for example, BigBand, nCube, SeaChange, Guideworks, Gemstar-TV Guide), Software Vendors (for example, OpenTV, Oracle, PowerTV, Real Networks, Replay TV, UniSoft Vidiom, VividLogic), Home Electronics (for example, Bang & Olufsen, Bose, Boston Acoustics, Canon, Dolby, Netgear, Seiko), and other trade organizations (for example, NAB, MPAA, ECCA (Europe), Euro CableLabs SCTE, Korea Cable Television Assoc., Korea Labs, Japan Cable Labs). Any company may also review Issued Specifications as publicly posted on the OpenCable website at www.opencable.com/specs.

be achieved to bring two-way equipment to market in the next 17 months – which it could not – it would retard innovation in the network, services and applications, and even in CE equipment, and would lead to massive consumer confusion and a loss of access to cable services that consumers expect to receive.

Since the Commission’s first request for a comprehensive solution nearly two years ago, CEA has put forward and then abandoned a skeletal proposal in November 2005; put forward yet another proposal in November 2006 that it now concedes was incomplete; and now, in its third attempt, still has presented only vaporware. Although proponents of DCR+ have now submitted hundreds of pages of comments in the instant record, there are still no functional specifications, no standards, no intellectual property clearances, no prototypes, and no firm and enforceable commitment by any CE company to build anything that would meet the DCR+ proposal. Even with its latest, voluminous modification of DCR+ for “completeness,” CEA still has not solved any of the technical specifications, standards, content protection or intellectual property issues, leaving them instead for a process that would entangle cable, CE, the Commission, and owners of creative content and intellectual property in years of turmoil.

A. The CEA Proposal Would Create Consumer Confusion and Limit New and Enhanced Service Offerings, with No Real Cost Savings

Cable services today deliver state-of-the-art, rapidly-evolving interactive services to their customers, such as Start Over™, Caller ID on TV, DVR programming via cell phone, instant polling/voting, and interactive advertising. Digital televisions built to the CEA proposal would strip away these services and more; these services will simply not run on a DCR+ device. *A consumer who owned three different models of DCR+ televisions would have no assurance that any one of them would receive the same services from the same cable subscription.* Only parts of the service might appear on digital televisions manufactured by different manufacturers, and then

in different ways. Thus, DCR+ would engender consumer confusion. Moreover, the DCR+ would be instantly archaic and incapable of receiving cable and cable programmers' rapidly developing interactive services.

There are lessons to be learned from CEA's history. Four years ago, CEA wrongly assumed that cable customers only wanted linear cable channels on "one-way" UDCP devices and had no interest in VOD. It is now obvious that VOD became a "must have" before UDCPs came to market. Today, CEA is repeating the same mistake with DCR+. The so-called "plus" would disable the very interactive features that distinguish cable service from the competition and make digital two-way cable products enticing to consumers. CEA calls these features too "advanced" for consumers;³⁴ but in fact these features are becoming commonplace and will be expected by consumers well before a DCR+ could ever hit store shelves. In contrast, Hitachi, Mitsubishi, Philips, Pioneer, Sony and TTE say in their separate comments as "Home Networking Proponents" that "it is imperative that these regulations address the cutting edge of digital technology development, not simply what might be viewed as traditional services or attachment models."³⁵ With that statement, each of these companies repudiates DCR+.

Devices built to the CEA proposal would also lack tools for customers to enjoy the convenience of watching early release content on cable instantly, rather than driving to video chain stores or awaiting the mailman. The CEA proposal to create "two-way" devices limited to yesterday's offerings of VOD will likewise disappoint and confuse cable customers, and frustrate, not enhance, efforts to excite and prepare consumers for the broadcast digital transition.

Part of the supposed appeal of the CEA proposal is that it seems to promise consumers the option of a lower-cost product. But the supposed economies are dwarfed by hidden costs.

³⁴ CEA Proposal, November 7, 2006, at 2.

³⁵ Home Networking Proponents Comments at 10.

They will not receive even *today's* cable services, and will need set-top boxes to receive cable services as they evolve. The CEA proposal would impose extraordinary and unnecessary costs on all cable operators and their customers: costs of a major redesign of every part of cable architecture, including VOD, guides, DVRs, CableCARDs, and leased set-top boxes;³⁶ costs of delay in OpenCable;³⁷ costs of new leased cable set-top boxes with CEA-selected outputs;³⁸ costs of new CableCARDs with radically different capabilities, resources and form factor;³⁹ costs of delay in every subsequent advance in cable services in a highly competitive market where no other MVPD is so straitjacketed; and the staggering cost of losing the network and device capabilities that could otherwise have allowed consumers to watch new early release movies on cable on demand more conveniently than with DVD rentals.⁴⁰ These are needless costs that the DCR+ would visit on all cable consumers, whether or not they ever buy a DCR+ device.⁴¹

³⁶ See NCTA Comments at 46-53, 63-64.

³⁷ See NCTA Comments at 39; see also Samsung Comments at 3 (indicating that Samsung only welcomes the adoption of rules that would not delay OpenCable).

³⁸ See NCTA Comments at 52-53.

³⁹ See NCTA Comments at 51-52.

⁴⁰ See NCTA Comments at 36-38.

⁴¹ The "Home networking proponents" would impose yet another cost: they propose to exclude cable operators from participation in the home networking business. See Home Networking Proponents Comments at 3 ("there must be complete separation between the cable-managed network and the consumer-controlled home network."). It would be fundamentally contrary to all notions of a free market and intermodal competition to prohibit an entire industry from providing a type of *competitive, emerging service* that consumers have demonstrated an interest in purchasing from that industry. Cable operators already provide home networking services, such as multi-room DVRs and wireless routers, and are among the few service providers that will come to consumers' homes to help them set-up a home network. The cable industry actively works with CE manufacturers and hundreds of other vendors in home networking fora such as UPnP and MOCA on non-proprietary home networking architectures, including for PCs. The UPnP™ Forum (UPnP) is an industry initiative designed to enable simple and robust connectivity among stand-alone devices and PCs from many different vendors. The Forum consists of more than 775 vendors, including industry leaders in consumer electronics, computing, home automation, home security, appliances, printing, photography, computer networking, and mobile products. CableLabs, Dell, HP, Intel, ATI and Sony and CEA's members are all members of UPnP. See generally <http://www.upnp.org>. The Multimedia over Coax Alliance (MOCA) is a non-profit mutual benefit corporation developing specifications for the transport of digital entertainment and information content over in-home coaxial cable. MOCA includes major players from the retail (RadioShack), consumer electronics (Panasonic, Toshiba, Hitachi), telephone (Verizon, SBC), satellite (EchoStar) and cable (Comcast, Cox) industries. See generally <http://www.mocalliance.org/en/index.asp>. The cable industry should be one among many which can offer home networking solutions to customers. There is no authority or public interest basis for the Commission to isolate cable as the only one forbidden to meet consumer home networking needs.

Likewise, TiVo's suggested "compromise" is that each cable operator re-write its applications into a special format custom-designed to run on TiVo devices. Although apparently intended as some type of concession that cable consumers have a right to receive a cable operator's services as they are provided by the cable operator, as a practical matter the proposal would create for TiVo a needless and redundant quasi-OpenCable Platform at cable's expense. Instead of TiVo simply adding the OpenCable Platform to its device, every cable operator would have to duplicate all applications in yet another format, and build infrastructure to support this new application format. Other CE manufacturers might then demand similar accommodation, leading to even more duplication. Consumers would not be well-served by such an inefficient use of resources.

The CEA proposal also comes with specially requested "earmarks" that CEA and Sony ask the Commission to extract from cable operators: free cable carriage of software patches and new firmware to their own devices that they expect to be too "buggy" when shipped, rather than relying upon their existing commercial paths for patches and upgrades;⁴² free guide data;⁴³ radically revised licensing agreements;⁴⁴ free intellectual property; free customer support and troubleshooting—none of which are in fact free. The real costs of CEA's proposal will just be indirectly imposed on cable customers through increased costs, which CEA will in turn try to blame on cable operators. All of this is antithetical to competition and the operation of the actual marketplace, but permeates the CEA proposal.

⁴² CEA Comments, Appendix A, "CEA's Proposed Draft Amendment to Regulations," §76.641(f); Sony Comments at 28.

⁴³ CEA Comments, Appendix A, "CEA's Proposed Draft Amendment to Regulations," §§76.641(c)(5)-(6); Sony Comments at 20-21.

⁴⁴ See Exhibit D hereto.

B. The CEA Proposal Leaves Creative Content and Other Intellectual Property Bereft of Adequate Protection and Vulnerable to Illegal Use and Distribution

The devices that CEA proposes do not include the testing, content protection tools or output review processes that studios seek. The creative content of these studios is a unique and valuable American asset, so popular internationally that it is one of the top positive contributors to the U.S. balance of trade.⁴⁵ Other arms of the government spend enormous resources trying to protect that asset from unauthorized dissemination. CEA's proposal for content security is quite the opposite. CEA proposes that an organization (DLNA) that has little incentive for protecting cable content should be permitted to approve any new content protection technology or digital output—which could then be used to ingest and redistribute all cable programming without approval from any content provider or any cable operator.⁴⁶ CEA's scheme for "output" approval amounts to one-stop shopping for cable programming, free of cost, and free of restriction.⁴⁷

⁴⁵ The "enduring entertainment value and appeal of US films around the world earned \$10.4 billion in audiovisual exports, a 20 percent increase since 2000. Moreover, the US motion picture industry is one of the few industries that consistently generates a positive balance of trade. In 2005, that surplus was \$9.5 billion, a total larger than the combined positive trade balance for telecommunications and computer and information services, and was 12 percent of the entire US private-sector service trade surplus." *Economic Impact of the Motion Picture & Television Production Industry on the United States*, Motion Picture Association of America, 2006 Report, at 10, available at www.mpa.org/press_releases/mpa%20us%20economic%20impact%20report_final.pdf.

⁴⁶ By contrast, the CableLabs approval process involves close participation with content providers. MPAA and the studios have specifically endorsed it. See MPAA Comments at 19. As noted earlier, under the current cable approach, CableLabs worked cooperatively with studios and the 5C CE companies (including Sony, Intel, Toshiba, Panasonic, and Hitachi), and has opened up IP-based home networks for creative content carried on cable, on terms the studios approved as respecting their rights as content providers and the rights of cable as distributors. If CEA remains concerned about the current CableLabs' and studio output approval procedures, we specifically offered in 2005 (and continue to offer) to add a provision for appeal to the Commission of an output decision governing two-way devices if the OpenCable regulations proposed by NCTA are put in place.

⁴⁷ The CEA proposal would also continue unsecured analog outputs from high-definition equipment, even as content providers and CE manufacturers work intensively to develop new platforms for distribution of high definition content that require secure digital connections to preserve that valuable content against piracy. See Exhibit D-2 hereto (describing CEA's proposal to hamper the digital transition by failing to sunset unprotected analog VGA outputs); see also NCTA Comments at 42 (recounting CE efforts in August, 2007, to use the standards process to widen the analog hole to 1080p, directly contrary to interests of content suppliers on whom cable is dependent.)

Public Knowledge would go further, and outlaw all technological content protection measures from Commission rules.⁴⁸ Creative content licensed for MVPD distribution is not cable's to "give" for unrestricted repurposing or redistribution, and it is not CE's (or the government's) to take. This is why there are testing, content protection, and output approval processes built into OpenCable, and why these shortcomings in the CEA proposal are fatal.

CEA is also asking for the Commission's blessing to play fast and loose with other people's property. The cable and CE industries both specifically agreed in the one-way MOU that interactive devices would provide EPGs via the OpenCable Platform middleware. The CEA proposal now repudiates that agreement, asking that programming data be reconfigured through yet-to-be-invented protocols, carried on cable systems via profiles that cable operators do not use, requiring a new headend/server architecture and new ways for CE manufacturers to help themselves to privately-owned bandwidth on the plant. The reason is to allow CE manufacturers to strip the program descriptions (and other information) from the cable operator guide and use them to rip, mix, and burn their own CE guides regardless of ownership of the data or their lack of intellectual property rights to use such data. In demanding "disaggregation" of cable services, CEA is asking the Commission to legitimize the illegal scraping of content, misappropriation, passing off, and violation of copyright.

Microsoft makes a pertinent point: an environment that does not respect the business models of distributors will also end up depriving consumers of desirable content. "The Commission also should adopt rules, as Microsoft has long maintained, that are economically viable for all parties concerned. For that reason, *Microsoft has not supported disaggregation of video services, since that would threaten the video services business model of cable and other*

⁴⁸ Public Knowledge Comments at 4.

video services operators. As Craig Mundie, Chief Technology Officer of Microsoft, wrote to the Commission in 2006, the Commission's rules should not 'interfere with the ability of cable operators to aggregate content and to establish and control the 'basic look and feel' of its offering' In short, giving consumers maximum choice in retail navigation devices does not require disaggregation, just as giving consumers maximum choice does not mean taking away from network operators the ability to make technology choices."⁴⁹

Microsoft, having invested the money and effort to clear intellectual property and having developed its own programming guide, including a guide for unidirectional cable content, rightly seeks to protect its investment. For good reasons, neither consumers, nor applications writers, nor PC manufacturers may harvest a Microsoft Windows Media Center Edition program guide for its metadata and populate a competing guide. By the same token, CEA has no legitimate claim to ask the Commission to confiscate cable operators' electronic program guides, or the data that helps to make those guides, for the benefit of CE manufacturers without any compensation.

C. By Refusing to Offer Any Firm Commitment Whatsoever to Make DCR+ Equipment, CEA has Renounced All Responsibility for Its Risky Proposal

If DCR+ were truly intended to deliver digital two-way equipment to consumers in advance of the broadcast digital transition, then one would expect to see in the filings of the proponents of the CEA proposal a series of enforceable commitments to deliver specific models of digital televisions to retail by holiday season 2008. Those commitments are utterly absent. Neither CEA nor a single CE manufacturer put forward any enforceable commitment to manufacture anything.⁵⁰

⁴⁹ Microsoft Comments at 5-6 (emphasis added).

⁵⁰ As Time Warner Cable rightly explains, a Commission solution will be incomplete unless it also compels manufacturers to make navigation devices commercially available. Time Warner Cable Comments at 18.

This should not be surprising. Even when the CE industry was *assigned* regulatory responsibilities by this agency, the Commission had to drag CEA and CE manufacturers into compliance with the DTV Tuner mandate. These same companies dumped millions of new analog TVs onto consumers for the past several years, refusing to inform buyers of their imminent obsolescence, and leaving the nation with an additional burden of analog TVs so close to the broadcast digital transition.

A similar indifference to consumers is evident in how CEA implements standards. CEA is swift to seek standards to impose on cable operators through proposed Commission regulations. It is swift to blame cable when CE devices don't work. Yet when presented with standards for their own devices—like 1394 or HDMI—CE manufacturers created exactly the kind of non-interoperable “tangle of separate devices for accessing video programming, video games and other two-way applications” that they now decry in comments.⁵¹ The dirty secret of CE “standards” is that even when they are adopted, CE manufacturers treat them as “voluntary”—that is, they are followed only at the manufacturer's option.

DCR+ cannot possibly contribute to the broadcast digital transition. Not only will it not be ready any time soon, it would block the very interactive features of digital programming that make two-way cable products enticing to consumers, nullifying the major contributions the cable industry is making toward transitioning American consumers into the digital world.

D. The CEA Proposal Does Not Promote Competition

CEA's proposal rests on the premise that technological progress and change requires formal consensus within and among industries (including competitors) on hardware and software technologies, specifications, outputs, content protection technologies, testing and certification.

⁵¹ Computer & Communications Industry Association Comments at 4. *See* NCTA Comments at 41, n. 75 (describing interoperability problems resulting from divergent CE standards for 1394 and HDMI).

Given the pace of technological innovation and the very real differences in approach among competing companies, this is not a realistic premise. Instead, it would throttle down innovation and create choke points that would stop consumers from enjoying the fruits of invention.

CEA proposes to freeze critical cable specifications in time. In a proposal that is simply breathtaking in its intrusiveness into the marketplace, CEA would require 20 percent of cable customers to limit reception of their cable service over operator-supplied set-top boxes to what a DCR+ can receive and then forbid them to upgrade their set-tops as technology advances.⁵² (In the meantime, CE would preserve for itself complete freedom to innovate and to produce more intelligent devices solely for cable's MVPD competitors.) This is certainly not the "common reliance" long advocated by CEA. It is the wholesale invention of a new architecture not found in cable, and force fitting the cable industry into it.

CEA's proposal would even let rival CE manufacturers stop one another from coming to market with an implementation or extension of the OpenCable Platform, a first bi-directional product, or a new in-home networking solution requiring a new output or content protection technology.⁵³ This cannot be what Congress had in mind for the digital television transition or the development of a retail market for navigation devices under Section 629.

⁵² CEA Comments, Appendix A, "CEA's Proposed Draft Amendment to Regulations," §76.641(c)(7) (no more than 80% of the navigation devices placed in service by a cable operator shall perform more than the functions of a DCR+ prescribed in the to-be-developed SCTE 28 2008 specification). CEA Comments, Appendix A, "CEA's Proposed Draft Amendment to Regulations," § 76.641(d)(5)(v)(at least 20% of the navigation devices placed in service by a cable operator shall include ONLY the version of the OpenCable Platform adopted in Commission rules, and may not include successor versions.) CEA Proposal, November 7, 2006, Attachment B, "Access to Basic and Advanced Interactive Services: Regulatory, Licensing and Testing Requirements," § 6.5.1 ("Substantial percentage of newly deployed cable devices must use OCAP Version X, as defined in this proposal.") § 6.5.2 ("Substantial percentage of newly deployed cable devices must use new version MS-CableCARD, as defined in this proposal.") We cannot reconcile Intel's position, which seems to say that until cable replaces all of its millions of deployed set-tops with OpenCable, DCR+ must be supported—even though DCR+ does not deliver the services those boxes do.

⁵³ See CEA Comments, Appendix A, "CEA's Proposed Draft Amendment to Regulations," § 15.38(b)-(c); § 76.602(b)-(c) (specification changes are those "deemed acceptable to both the CE and cable industries"); § 76.641(d)(5)(v)(at least 20% of the navigation devices placed in service by a cable operator shall include ONLY the version of the OpenCable Platform adopted in Commission rules, and may not include successor versions); §

Other commenters also (unintentionally) illustrate the high risks in trying to freeze technological solutions into place via regulation. The 1394 Coalition and DTLA, each of whom supports competing networking solutions, are fighting for marketplace primacy, and the fight has spilled into the Commission. Each group already has the right through licenses to include their favored technology in retail one-way and two-way devices. But now, each is seeking a Commission rule to make their technology mandatory in set-top boxes leased by a cable operator. In the case of 1394, that connector is already required by the Commission to be provided by cable operators in all high definition set-top boxes.⁵⁴

The CEA proposal is attracting even more special interests, each looking to implement ever more complicated and unworkable mandates. Such requests only serve to confirm to the Commission why it is a mistake to try to lock limiting technologies into place through agency

76.641(e) (no new interactive application that is not bound to a program may be placed into service by a cable operator without being verified at the required testing facility); § 15.124(e) (first model of DCR+ and OpenCable devices must pass testing). *See also* Sony Comments at 24 (approval of cable output technologies, “all related licensing, standards setting, testing, and certification obligations” must include all MVPDs, not just cable operators, content providers, interested consumer groups, and consumer electronic product manufacturers); Sony Comments at 27 (“the CE industry must have an equal role in the creation of the test suites for DCR+ and OCAP-enabled products”); CEA Comments, Appendix B-2, “CEA Proposed Model ‘i-DFAST’ License,” contains additional provisions that would block change. Sections 6.1 and 12.8 do not permit any changes in applicable specifications that would materially amend, alter, or expand the specifications applicable to a Host, halting the evolution of both Host and OpenCable Platform specifications without obtaining written license amendments from all licensees. Section 6.2 provides that any two unaffiliated licensees may object to a proposed change in compliance rules or outputs and obtain Commission resolution. The availability of the output would remain under a regulatory cloud for at least 18 months. CEA’s Proposal of November 7, 2006, Attachment B, “Access to Basic and Advanced Interactive Services: Regulatory, Licensing and Testing Requirements,” contains similar constraints. *See* § 8.2 (“Supermajority of CE manufacturers with products in the market (not just licensees) must approve any subsequent changes to the OCAP Version X software conditional access specifications.”); § 6.5.1 (“Substantial percentage of newly deployed cable devices must use OCAP Version X, as defined in this proposal.”); § 6.5.2 (“Substantial percentage of newly deployed cable devices must use new version MS-CableCARD, as defined in this proposal.”)

⁵⁴ Comments by the performing rights organization (PROs) BMI and ASCAP seek an exemption from technological protections for their professional monitoring of controlled content. CableLabs has previously offered to BMI the DFAST decryption algorithm at a nominal one time cost, and has directed it to a qualified vendor for development of any necessary tools. These arrangements would allow for decrypting of content, limited use in rights monitoring system, and appropriate protection of the content. To our knowledge, the PROs have not followed through on the commercial technical solutions available. We also note that their proposed rule would permit far more expansive activities than the performing rights monitoring that the PROs describe.

rules, and why the dynamic, adaptable OpenCable Platform is the best and only workable alternative.

CEA's proposal is not necessary to facilitate retail competition with the set-top boxes supplied by cable operators. CE manufacturers have always had the option to build low-cost devices under the free rein given them for UDCPs, but they have not done so. Cable operators are not trying to compete in providing the high-end HD devices that CE manufacturers have been producing. Cable operators are selling *services* and competing with *service providers*: all cable operators receive from set-top rentals is the ability to render services and the recovery of their equipment costs at Commission-prescribed rates. This is one reason why the cable industry has offered the CE industry the opportunity to rely upon the same OpenCable Platform that cable uses and which makes retail devices portable.

E. The CEA Proposal Sacrifices Innovation for Premature Standardization

In contrast to the OpenCable Platform, which invites and accommodates innovation, the CEA proposal would condition invention on elusive consensus—even among competitors. To appreciate how innovation would be lost under that formula, consider what would happen if the CEA approach were applied in a “common reliance” manner to all affected participants as proposed by CEA and Sony.

DBS could not have offered MPEG-4 if it had to await elaborate industry consensus or rule change. AT&T still would not have deployed U-Verse if it were required to wait until IPTV issues were set through industry consensus or by an ANSI-accredited body.⁵⁵ Had Verizon deferred its hybrid IP/QAM offering until such processes were completed, it too would still be waiting to enter the marketplace.

⁵⁵ AT&T describes the ANSI standards process as one with meaningful participation by all interested parties from the outset, consensus decision-making, due process rights to all participants, and open disclosure of all licensing terms. AT&T Comments at 12. AT&T certainly did not follow this process for its own new U-verse products.

Consider the impact if consensus standards were required in television manufacturing before televisions that connect to cable could be shipped. Before Sony could begin building its next “cable ready” Bravia television, it would have to await standards and testing mutually agreed to not just by Sony and the cable industry, but also by Mitsubishi, Philips, Pioneer, Hitachi, JVC, LG, Panasonic/Matsushita, Samsung, Sharp, Thomson, Toshiba, and Zenith. Each “basic” feature in that new Bravia television, including its ability to access linear and on-demand programming and metadata associated with each program or contained in its guide, would have to be available through common applications programming interfaces (“APIs”) for other devices (set-tops, DVRs, PCs, competing menus) to integrate into another user interface. Any new feature would have to be made available by Sony months in advance for “testing” by every competing CE company, and by cable companies with systems to which the television might connect. If Sony wanted to update versions of software, it would still be required to manufacture some percentage of sets only with older versions, in order that Sony’s competitors could ensure that Sony is “commonly relying” on the same outdated technology. The CEA approach would also require common APIs for games, so that consumers could use the Nintendo Wii controller on all PS3 gaming platforms. The Bravia and PS3 and Wii would not have come to market under such constraints.

This is not how Sony innovates. Sony does not wait for open standards. Recently, it sought to leverage its proprietary and decidedly non-”open standards” technology. It failed, and was forced to leave the content protection and digital rights management market entirely.⁵⁶ But Sony neither waited for industry consensus nor considered itself committed to the product forever—the prescription it seeks to apply to cable.

⁵⁶ “Sony connects with Microsoft’s DRM,” LOS ANGELES TIMES, August 30, 2007, available at <http://opinion.latimes.com/bitplayer/2007/08/sony-connects-w.html>.

Rivaling CEA and Sony’s comments for consumer-unfriendliness is the statement in which Public Knowledge decries “private coalitions” and others who deploy technology without awaiting the actions of standards bodies.⁵⁷ If companies (and even “coalitions” of companies) were constrained in launching inventions as Public Knowledge demands, we would never have seen Apple’s iPOD, or Sony’s Walkman, or the Microsoft Windows Operating System, or satellite radio, or wireless communications. And if the right of invention had been foreclosed to cable—as CEA’s DCR+ proposal would do —American consumers would still be waiting for all of the innovative and competitive video, broadband and telephone services that cable has delivered to date. Whatever Public Knowledge’s intentions, it would be no favor to consumers to put such a regulatory chokehold on the development of new technologies, services and applications by conditioning their release upon consensus and approval by standards bodies.

F. The CEA Proposal is Based on “Standards” That Do Not Exist and is Otherwise Technically Deficient in Ways that Would Hamper Innovation, Compromise Cable Network Security, and Thwart Law Enforcement Activities

If it were actually easy to make two-way cable services work on UDCPs with a little “plus,” as CEA and Sony suggest, then they would have already invented it and standardized it and cleared each element for intellectual property *before* presenting it to the Commission as a solution to facilitate the broadcast digital transition. CEA and Sony have not done so because they understand that the proposal is *not* easy, swift or cost free. The technical holes in their proposal are jaw-dropping.

CEA’s proposal for DCR+ includes standards that do not exist today in the form proposed by CEA. CEA lists six new standards to be included in the proposed Part 76 rules. Four do not yet exist, and the remaining two are lacking critical elements needed to operate with

⁵⁷ Public Knowledge Comments at 3.

CEA's current technical approach. Four more should have been referenced, but were omitted.

CEA lists nine new standards to be included in the proposed Part 15 rules. Of those, four do not yet exist, and three more will need critical changes.

CEA and Sony suggest that this is really just is a modest effort to tweak existing standards. It is not. The CEA proposal would require a completely new CableCARD with more memory, RAM and Flash, and more and higher-speed CPU processing power. It will need to implement both an IPv4 and IPv6 stack. This will require complete redesign of existing hardware, including new custom microchips. All three CableCARD vendors agree that adding such capability in the card will also require a significant increase in power and thermal loading requirements, expected to be beyond the passive cooling that is provided today. Current estimates are 3-3.5 years of new development, which can only occur after the protocols and standards are agreed upon and issued. Time will also need to be factored into the process for added testing and qualifications of both the new CableCARDS and new DCR+ host products. This testing will be far more complex than existing UDCP testing or existing CableCARD testing. And that is not all: VOD and SDV vendors would need to write completely different and redundant variations of their applications for execution inside the CableCARD. Even that effort would not make it work, because of profound technical failings in the proposal.

Exhibit A catalogues the "Top Ten Technical Failings" of the newly-revised CEA proposal. If we focus on the issue of network security alone, we see how fatally flawed DCR+ really is. In an about-face from its 2006 filing, CEA now proposes to utilize a DOCSIS-based reverse communication path *without* protecting security. This would weaken the common core security on which cable-delivered video, high-speed Internet, and IP-based voice services all depend. Hackers and pirates are already poised to exploit any weakness, but known hacks today

require physical modifications to the modem and cannot be distributed over the Internet.⁵⁸ The DCR+ opens the gates wide: it makes no provision for secure software download, a key authentication measure used to ensure the end-to-end integrity of cable-delivered video, high-speed Internet, and IP-based voice services. Without secure software download, the cable modem in a DCR+ device would be unprotected against the distribution of undetectable rogue software that can be easily downloaded over the Internet. In addition to other malicious attacks, rogue software can be used to effectively create cable modem clones, including cloned or spoofed MAC addresses.

The Cable Broadband Intercept Specification (“CBIS”), on which the law enforcement community relies for CALEA-compliant wiretaps, in turn relies on a secure cable modem MAC address to identify target facilities. Because the DCR+ would compromise existing countermeasures, it would increase the risk of undetectable modem hacks. Those hacks include spoofing of modem MAC addresses, thus limiting the ability of law enforcement to perform lawful intercepts, and increasing the likelihood that surveillance will be directed to an innocent customer, rather than the target. Widespread, software-proliferated, modem hacks could also open the network up to denial of service attacks, even system-wide. The DCR+ would undo years of work by the cable industry, the FBI, and the Commission, undercutting a suite of anti-pretexting rules that protect the security and integrity of cable systems and the privacy of their voice and data customers.

⁵⁸ The TCNISO website (www.tcniso.net) offers downloads of “DreamOS,” promising “Complete control of the device and DOCSIS stack” and “OneStep,” “the software that took cable modem hacking mainstream.” “By making uncapping easier, OneStep introduced cable modem hacking to individuals who may not have been able to accomplish it otherwise (and created many security concerns for service providers in the process).” Known modem hacks today may enable spoofing of modem MAC addresses, but they require physical modifications to the modem and cannot be distributed over the Internet.

Such security issues are not illusory – and neither is Sony’s record of inadvertently compromising the security of consumer devices. Just two recent examples prove the point. In 2005 it was Sony-BMG’s digital rights management software, for which the Federal Trade Commission specifically criticized Sony’s handling of consumer disclosure and consumer education.⁵⁹ In 2007, it was Sony’s high-end Memory Sticks that were found to create safe hiding places for computer malware.⁶⁰ Sony is, of course, the primary architect of the “DCR+.” The Commission should not allow Sony’s history of security compromises to spread to video, high-speed Internet, and IP-based telephone services.

G. Even Under the Most Generous Assumptions, the CEA Proposal Could Never Make a Timely Contribution to the Broadcast Digital Transition

CEA and Sony claim that DCR+ is a modest effort that may be completed promptly with a few tweaks to existing standards. The facts are that, 24 months after the Commission’s first request for a comprehensive solution, after one abandoned skeletal response, a second admittedly incomplete version, and hundreds of pages of comments later, the third CEA attempt amended for “completeness” *still* provides no functional specifications, no standards, no intellectual property clearances, no prototypes, and no firm and enforceable commitment by any CE company to build anything that would meet the DCR+ “standard.” The CEA proposal still is not baked.

Adoption of CEA’s shell proposal would plunge the industry into years of turmoil. The standards “cited” by CEA do not exist today in the form proposed by CEA. They are casually

⁵⁹ See *Sony BMG Music Entertainment, a general partnership*, Complaint, FTC File No. 062-3019, Docket No. C-4195 (June 28, 2007), available at <http://www.ftc.gov/os/caselist/0623019/index.shtm>; see also *Sony BMG Music Entertainment, a general partnership*, Decision and Order, FTC File No. 062-3019, Docket No. C-4195 (June 28, 2007), available at <http://www.ftc.gov/os/caselist/0623019/index.shtm>; see also <http://www.ftc.gov/opa/2007/01/sony.shtm> (FTC news release).

⁶⁰ “Researchers say Sony software makes PCs vulnerable,” REUTERS (Aug. 29, 2007), available at <http://www.reuters.com/article/technologyNews/idUSN2827810420070829>.

labeled “[2008]” in CEA’s proposed rules and noted as “to do’s” under lengthy standards processes. CEA’s proposed revisions are not minor – they would require major modifications to existing standards which will take a substantial amount of time and effort. It took CEA *thirteen years* to reach consensus among its members on how to standardize analog channels for television reception of analog cable channels.⁶¹ For more than two years, CEA has refused to even update the joint test suite for UDCPs, even for known errors. Our initial comments offered more examples.⁶² AT&T, Microsoft and DirecTV have confirmed the massive efforts and delays inherent in trying to remake existing networks into the image of another technological architecture.⁶³ Thus, even if DCR+ could ever be deployed, retail DCR+ products would be years away, whereas OpenCable devices can reach consumers in 2008 in time for the broadcast digital transition.

Even when both parties are committed to the outcome, developing or revising standards quickly and efficiently is challenging. The cable industry and Microsoft developed a one-way device capable of receiving unidirectional cable content and providing it in a secure fashion to personal computers. Despite being able to collaborate in a small group on a technology based in large part on existing CableCARD technology, with a common goal in mind, and with intellectual property clearances having already been obtained, it still took over three years to get to a point where the unidirectional product could be deployed.

None of these favorable characteristics exist for DCR+. There is no common goal between cable and CEA, or even within the CEA membership itself, given that many of CEA’s leading members are focusing their attention on the far more promising and expeditious

⁶¹ Under the CEA standards process, IS-6 became IS-132, which became EIA-542, which became CEA-542B. It took more than 13 years to produce the very simple Cable Channel Plan standard. This slow process was one of the reasons that led to the development of CableLabs, so that the cable industry could innovate more rapidly.

⁶² See NCTA Comments at 40-41.

⁶³ AT&T Comments at 9-10, 14; DirecTV Comments at 7-10, 12-13; Microsoft Comments at 8-10.

OpenCable Platform. The working groups that DCR+ would require would be unwieldy and fractious, a theme that unfortunately characterizes all CEA group discussions to which the cable industry has been a party. And, in stark contrast to the OpenCable Platform that is already supported by an internationally recognized patent pool (in which many CEA member companies participate), CEA has not even begun to address the existence of intellectual property issues and the needs for rights clearances. There is no evidence that any CE manufacturer has begun to do any of this work. Even if DCR+ were feasible, the time necessary to establish standards would be dramatically longer than the 17 months remaining before the broadcast digital transition (especially since the standards would have to be completed in time for the development and production of new digital television models that could be shipped to retailers in time for the 2008 holiday season).

There are even more deficiencies in the CEA proposal. CEA, Sony and their allies have not put in place the CE development teams that would be necessary to make DCR+ work (if it were workable). They have chosen not to worry about the need of the cable industry to manufacture new and enhanced CableCARDS, install new headends, or the need to assemble teams of experts to support that effort. They would leave it to cable companies to the fill telephone banks with customer service representatives trained in troubleshooting interoperability problems on completely diverse implementations of consumer devices. They would also leave to cable the assembly of engineering teams willing to step in and ensure that OpenCable is not delayed. If the implementation of DCR+ truly requires nothing more than a handful of amendments to standards documents and a modest cost, then CEA, Sony and their allies should commit to hold cable and all cable customers harmless from all costs and delays, rather than placing 100 percent of the burden, risk and cost on cable and cable customers.

Even with its latest iteration, CEA still has not solved any of the technical specifications, standards, content protection or intellectual property issues, leaving them instead for a process that would entangle cable, CE, the Commission, and owners of creative content and intellectual property in years of turmoil.

The CEA proposal cannot possibly contribute to the digital transition. Not only will it not be ready any time soon, it would block the very interactive features of digital programming that make two-way cable products enticing to consumers, nullifying whatever contribution a “digital cable” *anything* could make towards ushering consumers into the digital world. CEA’s proposal is a lobbying tract, not a practical solution.

H. The CEA Proposal is Not *Carterfone* for Cable

Proponents of the DCR+ argue that the cable industry can be remade by simple analogy to *Carterfone* and the telephone network. The Commission has rightly rejected that telephone analogy, for good reasons.⁶⁴ *Carterfone* is not an appropriate analogy for cable.

First, unlike the telephone industry in the pre- *Carterfone* days, cable has no reluctance to provide access for retail devices to connect to its network and receive cable’s most advanced two-way services. After all, cable is in the business of selling *services*, not equipment, and the more options consumers have to obtain equipment to access cable’s services, the better it is for the industry. Retail manufacturers need only rely on the OpenCable Platform, as does cable in its most advanced set-top boxes, to produce devices compatible with cable’s two-way services.

Second, the telephone network was originally built to a common standard nationwide by a single homogenous entity, AT&T. By contrast, the cable industry is a roll up of systems built at

⁶⁴ The Commission recognized in 1998 that “the telephone networks do not provide a proper analogy to the issues in this proceeding due to the numerous differences in technology between Part 68 telephone networks and MVPD networks.” *Commercial Availability of Navigation Devices*, CS Docket 97-80, First Report and Order, 13 FCC Rcd 14775, 14788 (1998).

various times with various vendors, each of which rolls out innovative services to consumers without waiting for a market winner among competing equipment vendors or the resolution of a standards body. The OpenCable Platform acts as a universal translator for those differences.

Third, the Commission's Part 68 rules applied to devices connected to a highly stable interface. The electrical characteristics of the telephone loop had been essentially unchanged for an entire century, and the facility was used only for a well-defined narrow-band "plain old telephone service" ("POTS"). The cable technology, facilities and services at issue here are widely varied and evolving rapidly, delivering multiple new broadband, two-way, digital services like video-on-demand, switched digital video, Start Over™, interactive advertising, instant polling/voting, parental controls, telephone service, and cross-platform interactive services like Caller ID on TV and DVR programming via cell phone. Cable technology, facilities, and services are evolving unceasingly. While fixed protocols cannot accommodate this innovation, the use of the OpenCable Platform middleware can.

Fourth, Part 68 never involved government constraints on the design of telephone networks and services. It merely required disclosure of the interface characteristics established unilaterally by the single owner of the phone network-AT&T. By contrast, cable has already provided a consensus-driven OpenCable interface for retail, and retail manufacturers are using it.

Fifth, AT&T sought to prevent competition from Carterfone to its wholly-owned Western Electric division. By contrast, cable does not own any of its set-top box vendors. Cable operators buy set-tops from Pace, Panasonic, Samsung, Scientific-Atlanta, and Motorola, to rent to consumers at regulated rates that essentially allow the recovery of costs.

Sixth, AT&T did not require content protection for dial tone. By contrast, cable networks and devices must include sophisticated content protection tools in order to attract creative content for delivery to customers.

Finally, the POTS architecture uses a dedicated line to each subscriber. A misbehaving client can present an incorrect load on one subscriber's line isolated from other subscribers. The two-way cable architecture uses a shared network and active transmitters. Misbehavior by one device can impact hundreds or thousands of subscribers.

In sum, false analogies to *Carterfone* cannot remedy the disconnect between the DCR+ and market reality.

And, false analogies to the 700 MHz spectrum rules are no better. The suggestion that DCR+ is consistent with “open access” principles adopted for the 700 MHz spectrum is mistaken. Those rules, of course, were set for only a portion of yet-to-be-auctioned 700 MHz spectrum, in advance so that bidders knew the rules, and as an experiment under which the Commission itself has reserved the right to re-auction the spectrum if the market responds poorly. It is quite a different matter to impose those rules retroactively on a network that has already been financed and built with private capital under a different set of rules. In any event, the OpenCable Platform provides open access for retail devices to cable's most advanced two-way services. Retail devices need only rely on the OpenCable Platform, as does cable. By contrast, such “open access” is not available for retail devices seeking to access the services of DirecTV, EchoStar, AT&T, or Verizon—for whom CEA has suspended all the principles that it claims must apply to cable.

I. Why Not Adopt Both? Because DCR+ is a Consumer “Minus”

For all its failings as a practical approach to the broadcast digital transition, as a lobbying tract, CEA's proposal for DCR+ is cleverly positioned. It claims that both OpenCable and

DCR+ should be supported. So the obvious question to cable is, if you can have OpenCable too, why not support both?

- Cable operators do not support DCR+ because the “plus” is really a “minus” for cable consumers. The DCR+ would disable the very interactive cable service features that cable customers expect and pay for, the features that distinguish cable service from the competition, and the features that make digital most enticing to consumers. Digital televisions labeled as “cable ready” under the CEA proposal would strip away cable services, features, parental controls, privacy profiles, interactive programming, and more – and each television would do so in different ways. Consumers would have no assurance that they would receive the same services from the same cable subscription on different models of televisions.
- The CEA proposal will separate cable as a service provider from the customers who have a right to receive the cable services to which they subscribe. It would legitimize the illegal use and distribution of content in ways that uniquely prejudice cable’s ability to obtain high-value content. An environment that does not respect the business models of distributors will end up depriving consumers of desirable content.
- DCR+ devices would lack the tools for customers to enjoy early release movies on cable on demand. Even more serious, by keeping unsecured and unapproved outputs open across the network, DCR+ devices would inhibit content suppliers from making early release movies available to any cable customers.
- By failing to address the most basic of DOCSIS network security concerns, the CEA proposal would put in great jeopardy the common security element on which cable-delivered video, high-speed Internet, and voice-over-IP all depend.
- CEA would require 20 percent of cable customers to limit reception of their service to what a DCR+ can do—which is less than cable’s current set-top boxes can do—then forbid them from upgrading their set-tops or utilizing existing features of set-tops as technology advances.
- CEA would shift to cable operators the practical costs of developing and deploying the DCR+ which requires a major redesign of every part of cable architecture, including VOD, guides, DVRs, leased set-top boxes, and new CableCARDS with radically different capabilities and resources. The costs will be suffered by cable customers even if no DCR+ device is ever built.
- The CEA proposal comes replete with additional Commission “earmarks:” free cable carriage of software and firmware to CE devices rather than relying on their existing commercial paths for patches and upgrades; free guide data; free intellectual property; free customer support and troubleshooting.
- These additional costs and burdens would inevitably delay OpenCable, the only practical solution, and in so doing it will delay the efforts of those competitive CE

companies that support OpenCable to get enticing interactive digital cable ready devices to market – devices that would help migrate consumers into the digital world.

- The CEA proposal would delay the deployment of almost every new cable service offering and uniquely deprive cable of the right to innovate.
- The CEA proposal would single cable out for these burdens and leave all of its MVPD competitors with no enforceable obligations whatsoever.

The cable industry does not support DCR+ because it is fundamentally at odds with the needs of cable customers, the nature of the cable business, and the reality of cable technology.

Ironically, Sony advanced five specific criteria – which it calls the “Five Freedoms” – under which it suggests that any Commission solution on two-way should be evaluated.⁶⁵ Even accepting those criteria for the sake of argument, DCR+ fails all of them.

Report Card: DCR+ Fails Sony’s Own “Five Freedoms”

1. **Consumer choice: Fail.** DCR+ cannot access the interactive cable services that consumers use and pay for today, or support the interactive programming of tomorrow. DCR+ would block some or all enhanced interactive programming features. DCR+ lacks the tools for accessing early release movies, constraining content suppliers from making them available to any cable customers. DCR+ imposes unnecessary and costly wholesale changes on the cable network used by all subscribers, shifting costs to all cable consumers whether or not they ever buy a DCR+. CEA’s proposal would dupe consumers into buying something that CEA knows will be obsolete.
2. **Consumer investment: Fail.** DCR+ will not operate at the level expected by consumers now. New services will need interactive middleware or a set top box. DCR+ will not evolve, so it will not permit reception of evolving cable services and will rapidly become obsolete.
3. **Fair and Open Technical Standards: Fail.** The standards for protecting and redistributing creative content delivered on cable would be handled by DLNA, outside of the Commission’s purview, and out of reach of the owners of that creative content.⁶⁶

⁶⁵ Sony Comments at 7.

⁶⁶ CEA Comments, Appendix B-2, “CEA Proposed Model ‘i-DFAST’ License, Exhibit B, Compliance Rules § 2.4.5(c) provides that DLNA may approve any digital output or content protection technology and it is automatically approved as a digital output or content protection technology without the consent of cable operators or content providers. DLNA is not a standards-setting organization and has little incentive to protect cable content. By contrast, studios routinely condition the availability of high value content on selected outputs. For a recent example, *see* David Pogue, “High-Speed Video Store in the Living Room,” *NEW YORK TIMES*, September 6, 2007 (“The Vudu box will play high-def movies through its HDMI connector only — not its component, S-video or composite jacks.”)

“Output approval” would be hijacked as a “one-stop shop” for cable programming, free of cost, and free of restriction. This would plunge the Commission into an intellectual property minefield.

4. **Level playing field/common reliance: Fail.** DCR+ does not rely on the OpenCable Platform used by the cable industry and already found suitable for retail use. The CE industry is repudiating its prior written agreement to rely on the OpenCable Platform that cable uses.
5. **Removing barriers to innovation: Fail.** DCR+ blocks current cable services from reaching the consumer, freezes set-top box and headend technology, derails OpenCable, and blocks innovative new services.

IV. THE COMMISSION SHOULD EXPAND ITS VISION TO AN “ALL-MVPD-READY” SOLUTION TO FULFILL THE GOALS OF SECTION 629

As we stated in our initial Comments, NCTA applauds the Commission for considering another approach to implementing Section 629’s “commercial availability” mandate in today’s MVPD marketplace – one that is marked by intense competition from DBS providers and the recent large-scale entry by formidable telephone companies.

We suggested a way to marry this broader vision of an all-MVPD solution with a practical response to CEA’s request for an alternative approach that would add more functionality to a separable network interface device.⁶⁷ Some other service providers have also expressed an interest, although part of Verizon’s comments reflects an apparent misunderstanding of NCTA’s proposal. The cable industry does not seek to impose cable technology on other platforms. Rather, we propose a constructive approach in which consumer devices can work on all MVPD systems, yet still allow MVPD networks to select their own technology, differentiate themselves, and use *different* network-specific devices to connect to digital televisions and make their services available through a common interface.

This approach could offer consumers a low-cost option for accessing all cable services on bidirectional retail devices – and the ability to use their televisions with other MVPD providers.

⁶⁷ See NCTA Comments at 71.

We contrast this with CEA's DCR+ proposal which imposes enormous costs on consumers and their cable providers, fails to deliver the cable services that customers want and pay for, and, in the end, costs consumers more money by prohibiting them from accessing new services on their supposedly "digital cable ready" device.

NCTA reiterates that the cable industry is ready and willing to cooperate in developing an "all-MVPD" solution in addition to the OpenCable Platform, but we cannot make that commitment if the Commission simultaneously subjects us to additional requirements to support the CEA proposal, which will only result in delaying both OpenCable and an all-MVPD solution.

CONCLUSION

For the reasons stated above, we respectfully request that the Commission endorse the approach submitted by NCTA to implement the marketplace-based OpenCable Platform solution for digital cable-ready bidirectional products. It is the only proposal with support from the three affected industries – cable operators, consumer electronics manufacturers, and content providers and therefore the only approach that can achieve the commercial availability of two-way digital cable ready products in time to serve the digital transition.

The cable industry is committed to providing timely and vigorous support for devices built to the OpenCable Platform specifications so they will have every opportunity to succeed in the marketplace in advance of the broadcast digital transition. The Commission should also invite and encourage the cable industry, other MVPDs, CE manufacturers, the content community, and other key parties to work together on an “all-MVPD” network interface solution.

Respectfully submitted,

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September 10, 2007

Exhibits

- A. Top Ten Technical Failings of CEA's Proposal
- B. DMAs with OpenCable – December 2008
- C. Proposed Regulations
- D. Critique of CEA's Proposed Licenses

EXHIBIT A

Top Ten Technical Failings of CEA's Proposal

1. Standards Do Not Exist in the Form Proposed by CEA.

Summary

CEA's proposal for DCR+ includes major revisions to a number of standards that will take a substantial amount of time and extensive effort to create.

In its proposed Part 76 rules, CEA identifies six standards to be incorporated into the Commission's rules. (CEA Appendix A, pages 8-9). Of those six, four do not yet exist, and two have been updated more recently, but still do yet reflect the current CableLabs requirements for DOCSIS Set-top Gateway (DSG). In addition, four more standards on which CEA now proposes to rely should have been referenced for DSG, but these were omitted.

CEA lists nine new standards to be incorporated in its proposed Part 15 rules (CEA Appendix A, pages 1-3). Of those 9, four do not yet exist, and three will need to be updated.

Engineering Detail

CableCARD-Host Interface (for unidirectional devices), ANSI/SCTE-28 [2008]: The 2008 version of the standard has not yet been either considered or adopted by the governing standards organization and therefore does not yet exist. The current 2007 standard addresses the requirements for unidirectional products and omits much of the required, and exponentially complex, two-way capabilities.

CableCARD Copy Protection, ANSI/SCTE 41 [2008]: The 2008 version has not been either considered or adopted and therefore does not exist. This is currently a 2004 standard which does not include the triple-DES security requirements that accompany the CableCARD 2.0 specifications.

Digital Video Multiplex and Transport System for Cable Television, ANSI/SCTE-54: The most current version of this standard was adopted in 2004. Updates to the 2004 version of the standard are pending to support Advanced Video Coding (AVC) for compression. Unfortunately, the ability to support AVC coding is not included as part of the proposed DCR+ rules. AVC is supported under the OpenCable Host 2.1 specifications, and is being implemented across the cable industry, by MVPD competitors, and by programmers. For example, HBO has already announced that as it begins a move to HDTV beginning the end of 2007, it will use MPEG-4 AVC compression to deliver the HDTV versions of all 26 HBO and Cinemax channels to cable and telco headends. AVC is in use in more current navigation devices.

Service Information Delivered Out-of-Band for Digital Cable Television, ANSI/SCTE-65 [2008]. The 2008 version does not exist. The current version of the standard was adopted in 2002 and a 5-year review is pending. The proposed SCTE 65 Profile 4 proposed by CEA is not used by cable.

DOCSIS2.0 Part 1: Radio Frequency Interface, ANSI/SCTE-79-1-2003 was adopted in 2003 and not been updated recently to match the more current version (CM-SP-RFIV2.0-I11-060602) needed to support DSG. Without such security, the integrity of the entire cable

network is placed into jeopardy from software/Internet-based cable modem hacks. See item 2.

CEA has omitted DOCSIS 2.0 Operations Support System Interface, ANSI/SCTE-79-2-2002 required for DSG.

CEA has omitted Set-top gateway specification for transmission systems for interactive cable television services, J.128, which is required for DSG.

OCAP software platform, ANSI/SCTE-90-1 [2008]. The 2008 version does not exist. This current version of this standard was adopted in 2005.

DOCSIS Set-Top Gateway (DSG), ANSI/SCTE-106-2005 has not been updated to match the current version (CM-SP-DSG-I10-070223) needed to support updates to DSG.

CEA has omitted Embedded Cable Modem Device, ANSI/SCTE-107-2005, required for DSG.

CEA requires support for Switched Digital Video (“SDV”) via “the SDB resource defined in SCTE 28.” (CEA Appendix A, page 6.) There is currently no “SDB resource” defined in SCTE-28. Creating one would require extensive modifications to the standard and would require that very complicated applications be re-written and that processing power be added to the CableCARD (something that was never anticipated). See Items 5-6.

CEA requires support for IPPV via “the Generic IPPV Support resource defined in SCTE 28.” (CEA Appendix A, page 7.) This resource was deprecated specifically because it would not work as defined for all the different conditional access (CA) vendors. Substantial time and resources would be required to support this resource.

2. DCR+ Undermines the Security of DOCSIS, Video, Data and Voice and Fails to Account for Diverse Network Infrastructure.

Summary

The DCR+ proposal would rely upon DSG for headend communication with set-top terminal devices, but CEA has made no provision for the integrity of operating software or applications in a DCR+ device. *This approach would weaken the common core security on which cable-delivered video, data, and voice all depend and expose the cable network to software/Internet-based system-wide attacks.* It would also undermine Cable Broadband Intercept Specification (CBIS), on which the law enforcement community relies for legal CALEA-compliant wiretaps. The failure of the DCR+ proposal to provide necessary security facilitates spoofing of modem MAC addresses, thus *limiting the ability of law enforcement to perform lawful intercepts of voice and data services, and increasing the likelihood that surveillance will be directed to an innocent customer, rather than the target.*

The DCR+ proposal additionally fails to recognize that the majority of cable systems rely on out-of-band communications, rather than DSG, for communication purposes with set-top terminal devices. By proposing to rely exclusively on DSG, DCR+ devices will not be nationally portable.

Engineering Detail

DOCSIS Set-top Gateway (DSG)

The DCR+ proposal fails to recognize the diversity of network infrastructure in use by cable operators for digital video services. In particular, cable networks today use at least three different solutions for two-way communication between the cable headend and set-top terminal devices. One of these is DSG, a DOCSIS-based protocol that is beginning to be more widely adopted. The other two methods rely on legacy out-of-band (“OOB”) communication.

DSG Security

The use of DSG, either alone or in conjunction with legacy OOB support, has security implications which are addressed in the OpenCable solution, but are not addressed in CEA’s DCR+ proposal. The integrity of the DOCSIS network must be based on the security components of DOCSIS specifications.

The elements of this security include:

- Device certificates for device authentication indicating that the device and its software are compliant with the specifications, including protections for the security of the network.
- Secure Software Download using code signing and validation for verifying the integrity of the software installed in the device. This measure is to deter rogue software entering the DSG modem which could then utilize the reverse path to the cable network.
- Certification of compliance with the device specifications through a hands-on certification testing program, including security testing to prevent harm to the network and the experience of other users.
- Management of the Public Key Infrastructure (PKI) to insure that certificates and the private keys that support them are protected appropriately to prevent theft of service and harm to the network.
- Encryption of customer traffic to help prevent unauthorized snooping of a cable customer’s voice, data, and video traffic. This is especially important in the star – branch “shared” network architecture of cable.
- Configuration file authentication to assure that the cable modem is operating with the correct, purchased, level of service, thus preventing theft of service.

All of the elements are necessary to protect the cable network from theft-of-service, denial-of-service attacks, and harm to the cable network (including harm to other consumers using the same shared network). If one of these elements is weakened, then the overall security of the cable network is reduced, potentially negatively impacting all services delivered by cable – voice, data and video. All CableLabs specifications (DOCSIS, CableHome, PacketCable and OpenCable) make use of DOCSIS cable modem and this same security model.

DCR+ Opens the Cable Network to Software/Internet-Based Attacks

The hardware implementation of DOCSIS based devices is critical to security of the device and of the network. The same is true for the software implementation in those devices

since the vast majority of the functionality of these devices is implemented in software. In the case of an embedded DSG modem, the integrity of the software that implements the DSG modem is ensured through the use of DOCSIS BPI+ Secure Software Download (SSD). All of the CableLabs specifications make use of this SSD mechanism to insure the integrity of the device and consequently the network. Only software that has been signed (and optionally co-signed) is permitted to be downloaded via SSD to the device that contains the DSG modem. The use of SSD therefore helps the cable operator to protect the network by protecting the /DSG modem software from tampering.

CEA has made no provision for the integrity of operating software or applications in a DCR+ device, compromising the overall cable security structure, and *exposing the cable network to software/Internet-based system-wide attacks. This would weaken the common core security on which cable-delivered video, data, and voice all depend.*

Hackers and pirates are already poised to exploit any weakness, but known hacks today require physical modifications to the modem and cannot be distributed over the Internet. The TCNISO website (www.tcniso.net) offers downloads of “DreamOS,” promising “Complete control of the device and DOCSIS stack” and “OneStep,” “the software that took cable modem hacking mainstream.” “By making uncapping easier, OneStep introduced cable modem hacking to individuals who may not have been able to accomplish it otherwise (and created many security concerns for service providers in the process).” Uncapping is a theft of service.

DCR+ opens the security gates wide to hackers and pirates: it makes no provision for SSD, a key authentication measure used to assure the end-to-end integrity of cable-delivered video, data, and voice services. Without SSD, the cable modem in DCR+ is unprotected against distribution of undetectable rogue software that can be easily downloaded over the Internet.

Widespread, software-proliferated, modem hacks could also open the network up to denial of service attacks, potentially system wide.

CALEA and Cable Broadband Intercept Specification (CBIS)

In addition to other malicious attacks, rogue software can be used to effectively create cable modem clones, including cloned or spoofed MAC addresses. Known modem hacks today may also enable spoofing of modem MAC addresses, but they require detectable physical modifications to the modem and cannot be distributed over the Internet. The Cable Broadband Intercept Specification (CBIS), on which the law enforcement community relies for lawful CALEA-compliant wiretaps, in turn relies on a secure cable modem MAC address to identify target facilities. Because DCR+ would compromise existing countermeasures, it would increase the risk of undetectable modem hacks. Those hacks include spoofing of modem MAC addresses, thus *limiting the ability of law enforcement to perform lawful intercepts of voice and data services, and increasing the likelihood that surveillance will be directed to an innocent customer, rather than the target.*

DCR+ Would Not Be Nationally Portable

Legacy out-of-band (OOB) communication is much more widely deployed than DSG.

CEA proposes that bi-directional services will be supported only through DSG, omitting OOB communication entirely. (CEA Appendix A, page 5.) *This is a flip-flop from its November 2006 filing where it indicated reliance on legacy OOB and made no mention of the DSG protocol*

If DSG alone is to be utilized, *the DCR+ proposal could not be implemented on a nationwide basis and DCR+ devices would not be nationally portable.*

3. DCR+ Fails Billing Integrity

Summary of Failing

CEA proposes an uninvented, untested approach for customer billing residing as a native application inside a retail television. Under OpenCable, the cable operator can completely resolve and be responsible for any billing errors for VOD purchases since every purchase is made using the cable operator approved VOD application. But under DCR+ the CE manufacturer's device will initiate and conclude the VOD purchase transaction. If there is a bug in the DCR+ TV software that causes erroneous transactions, the customer will be billed and unable to resolve this billing "error" with the cable operator. There is a significant liability associated with this approach, yet CEA has not addressed indemnification by the DTV maker or protection of the consumer.

Engineering Detail

There are serious billing system implications to the DCR+ proposal. For example, a major billing system for systems that use Scientific-Atlanta CableCARDS relies upon the Host MAC address to identify the subscriber for transactional billing (e.g., the purchase of VOD). Under the CEA proposal, even if the Host had a MAC address that was readable by this new CableCARD, it would not be a MAC address that is registered in the billing system. Another new solution is needed, which will take more time to develop.

Under the DCR+ proposal there will be significant new customer service issues that will be impossible to resolve by the cable operator alone. For example, with cable operator legacy boxes or when OpenCable boxes are used, the cable operator can completely resolve and be responsible for any billing errors for VOD purchases since every purchase is made using the cable operator approved VOD application. But under DCR+ the CE vendor's VOD application in the DTV will actually initiate and conclude the VOD purchase transaction. This means if there is a bug in the DCR+ TV software that causes erroneous transactions, the customer will be billed and unable to resolve this billing "error" with the cable operator because the fault will be with the application in the DTV. CEA is proposing that the integrity of the cable operator's billing for customer purchase of VOD titles (and the integrity of payment to VOD program suppliers) be entrusted to an uninvented, untested native application inside a retail television. CEA proposes not to present such CE-written VOD application for testing or certification. While there is a significant liability associated with this risk, CEA does not offer indemnification by the DTV maker or anything else to protect the consumer.

4. DCR+ Disables Cable's Ability to Recover Unused Spectrum by Using Switched Digital Video (SDV)

Summary of Failing

The DCR+ proposal would hamstring cable's ability to deploy SDV, a bandwidth conservation tool critical to spectrum recapture efforts and the roll out of new and innovative services.

Engineering Detail

Switched Digital Video ("SDV") helps to preserve bandwidth so that it can be used for deployment of innovative new services. The recovered bandwidth can be used to deliver more high definition, standard definition and on-demand channels. Indeed, the recovered bandwidth is essential for cable operators to facilitate the broadcast digital transition. The bandwidth can also be used to deliver faster "bonded" channels with dramatically improved "wideband" Internet speeds of 100 Mbps; digital voice service; and more interactive two-way services. SDV promotes broadband deployment and adoption and causes less disruption for consumers because SDV uses intelligent network management techniques to expand digital capacity without tearing up the streets to install additional fiber.

CEA would authorize retail CE devices to implement an automated response to "spooof" a cable operator's SDV system indicating that a channel is in use for four hours after it is actually in use. CEA Appendix C, page 4. With the option for "automated responses" SDV services will be "stuck-on" needlessly, completely negating the ability of a cable operator to recover unused bandwidth with SDV architecture. Denying cable operators the ability to manage the SDV service harms the network and every consumer using it. The response mechanism proposed is also not consistent with current SDV reporting details required by operators to determine where the most network efficiencies can be gained.

As noted in item 1 above, CEA requires support for SDV via the non-existent "SDB resource defined in SCTE 28." CEA Appendix A, page 6. Creating such a resource would require extensive modifications to the standard, very complicated applications to be redundantly rewritten, and massive processing to be done by the CableCARD that was never anticipated. This will likely require new hardware for CableCARDS to handle the added processing power needed. To define and implement such extensions to the CableCARD will take much time and effort.

5. DCR+ Requires Major Redesign of CableCARD to Support Services in a Redundant Manner

Summary of Failing

CEA's DCR+ proposal essentially moves all of the OpenCable Platform functions of electronic program guide ("EPG") data reception, VOD, SDV, and IPPV into the CableCARD itself, rather than relying upon the Host. In order to run these complex applications in the CableCARD, the CableCARD will need a complete redesign with new silicon, more RAM and Flash memory, and more CPU processing power. It will also require 3DES security across the Card Interface to meet the requirements for high-value VOD content. This requires a complete

redesign of existing hardware. It will take several years of development time, standards efforts, and the development of test tools, testing and certification. Even if the CableCARD is completely redesigned to accomplish these redundant functions, these proposed protocols do not support such existing features as “Start Over™” or future ones like “Look Back.”

Engineering Detail

The currently deployed SDV, VOD, and IPPV implementations and applications are network specific, and have been operated in that fashion by every cable operator since inception. The OpenCable Platform uniformly abstracts these network-specific differences into a common set of APIs, so that may work in the Host.

CEA’s DCR+ approach proposes to provide these same services in an entirely new manner. The CEA proposal moves all of the OpenCable Platform functions of EPG data reception, VOD, switched digital, and IPPV into redundant CableCARD functionality, leaving just the actual navigation user interface in the host. CEA Appendix C, page 10.

CEA’s DCR+ proposal requires that special VOD applications will run in the CableCARD rather than in the Host. VOD systems are currently designed to run applications in the Host. The Host, obviously, has more capacity to run complex programs than a limited functionality, limited purpose card. This change will require a redesign of the CableCARD with more resources and a new application.

The new CableCARD anticipated in the CEA proposal will be required to process SCTE-65 system information, and cache VOD Metadata. This new CableCARD will also need to implement both an IPV4 and IPV6 stack.

There is tremendous complexity added to the CableCARD to support these different applications when one factors in the various VOD, SDV, EPG, and conditional access (CA) vendors involved. SA-Cisco described these CableCARD changes as “very complicated.” Without the OpenCable Platform as an abstraction layer, each CA vendor would have to deploy one “CableCARD variation” for every different combination of applications on each system. This would create a matrix of at least 3x3x3x3 resulting in an unmanageable field of unique CableCARD designs and applications.

All three existing CA vendors (CCAD, SA-Cisco & NDS) agree that the impact of the DCR+ Proposal on the CableCARD is significant and will certainly require new silicon, more memory and more CPU processing power. Today’s state-of-the-art M-Cards are in the 56 MIPS range and estimates are that this would need to increase to 200 MIPS or more to support the added complexity. The current ASIC in the Motorola M-CARD for example would have to change, to include a higher speed processor, and significant RAM and Flash additions. This is a significant hardware change requiring a complete redesign of existing hardware including ASICs (custom microchips). It will take several years of development time. *A preliminary estimate of impact by a major CA vendor is 3-3.5 years of new development.* This development can only occur after the protocols and standards are agreed upon and issued.

All three CableCARD vendors also agree that such added capability in the Card will also require a significant increase in power and thermal loading requirements. This could be four times (or more) greater than the current requirements. This new power dissipation has an impact on the Host that is beyond anything ever required, even for the older S-CARDS (which create more heat than M-Cards). Heat dissipation is a Host requirement that is unaccounted for by

CEA. It remains unlikely that the Host heat dissipation requirements could be accomplished with only passive cooling that is provided today (i.e., a fan may be necessary).

The CEA proposal to continue with UDCP hardware and force all the change onto the CableCARD is not consistent with content agreements. VOD (high-value) content is required to be protected with 3DES across the Card Interface. Since UDCPs only support the older and now obsolete single DES encryption, they are not equipped, without redesign, to support the protection needed for the high-value VOD content. This will add more development time on the DCR+ Hosts.

Contrary to the original DCR+ Proposal, which suggested that no hardware change would be needed in the DCR+ Host, the latest proposal (because of DSG reference and 3DES) makes it clear that new Host hardware is needed. In addition to providing significant heat dissipation noted above, we must assume there is new Host hardware to handle the security elements of the cable network. Of course this will extend the unrealistic timelines proposed by CEA even further.

Time will also need to be factored into the process for added testing and qualifications of both the new CableCARDS and these new DCR+ host products. This testing will be far more complex than existing UDCP testing or existing Card testing. Testing and certification for DCR+ devices could not begin until standards are promulgated for such devices, test tools are developed, and Hosts are actually built.

Even if the CableCARD is completely redesigned to accomplish these redundant functions, these proposed protocols do not support such existing features as “Start Over™” or future ones like “Look Back.”

6. DCR+ Requires New Headends and VOD, SDV, and IPPV Applications

Summary of Failing

All three CA vendors (CCAD, SA-Cisco & NDS) agree that because new and different VOD/SDV service applications will need to be written to run on a redesigned CableCARD, rather than on the OpenCable Platform, there will be an impact on the headend systems, servers and additional bandwidth to support DCR+. This is a complete departure from application providers’ current design and further adds to the development time needed to implement the DCR+ proposal.

Engineering Detail

All three CA vendors (CCAD, SA-Cisco & NDS) agree that there will be impact on the headend systems to support DCR+.

One example is the needed infrastructure to support loading all these new and different VOD/SDV service applications on the CableCARDS, and the impact of new servers and additional bandwidth to support that. This is because the redundant VOD/SDV applications would need to be rewritten to support DCR+ and downloaded in a CableCARD rather than a common OpenCable Host platform.

Currently VOD vendors write applications for legacy set-top boxes and for the OpenCable Platform. Under the DCR+ proposal, they would need to write yet another variation of their application for execution inside the CableCARD.

According to our understanding of the DCR+ proposal, this new application would need to abandon all the portions that have to do with user-interface design and navigation and replace those with a translation routine that formulates messages and responses across the CableCARD interface. This is a complete departure from current application designs and further adds to the development time needed.

7. DCR+ Fails to Support Advanced Codecs

Summary of Failing

CEA's DCR+ proposal fails to support advanced audio and video codecs used by cable, telephone, and DBS, and required for such services as AVC.

Engineering Detail

CEA's DCR+ proposal fails to support advanced audio codecs for DCR+ Host products. CEA Appendix A, page 6.

Several new audio codecs are currently defined by OpenCable Host-2.1 specifications, but are missing in DCR+. In addition to the Dolby Digital (AC3) the cable industry has now specified the following new audio codecs:

- MPEG-1 audio (Layer I, II & III);
- MPEG-4 AAC,
- MPEG-4 HE-AAC
- MPEG-4 HE-AAC-v2 audio

CEA's DCR+ proposal to expand UDCPs to include support for SDV fails to include any advanced codec requirements for UDCPs (e.g., AVC). For operators to effectively use their plant bandwidth for SDV, they will need to encode using the latest technology. SDV provides the mechanism to deploy these new codecs in the most graceful transition.

CEA's DCR+ proposal permits implementation of Host 2.0 as an alternative to Host 2.1. CEA Appendix A, page 7. Host-2.0 does not support advanced codecs. Without the support for advanced codecs by devices that provide access to switched services, operators will be denied the full benefit of the efficiencies gained by this new technology. Advanced codecs are used by all of cable's competitors, DBS and telcos alike. DCR+ will be instantly obsolete.

8. The DCR+ Proposal Seeks Navigation Not Supported by PSIP

Summary of Failing

CEA proposes navigation based on PSIP, but by agreement, under FCC rules, and pursuant to the CableCARD interface specification PSIP data is present for only for in-the-clear broadcast channels.

Engineering Detail

CEA's DCR+ proposal would allow navigation based on PSIP-enabled navigation. CEA Appendix A, page 5. Under the February 2000 PSIP Agreement between NCTA and the Consumer Electronics Association, current FCC rules, and the CableCARD interface specification, PSIP data is present for only those services forwarded as in-the-clear off-air services, and its value for navigation is limited to that subset of services. There is no PSIP, or definition of PSIP, for any other type of cable content.

9. CEAs Proposal Contains No Specifications Governing Access to Upstream Network Capacity

Summary of Failing

The proposed DCR+ specifications provide no protections against unmediated transmission upstream, which undermines the integrity and security of the network shared by all customers, and allows introduction of malware into the system

Engineering Detail

CEA Appendix A, page 3 describes the technical means for Unidirectional Digital Cable Products ("UDCPs") to access the return path of the cable system to the headend. It says only that "unidirectional digital cable products may have a bidirectional capacity so as to allow a user to select linear programming that is made available by a cable operator on a 'switched digital' basis." There is no specific regulation or constraint on the access.

Unmediated transmission upstream compromises security and operational integrity. A signal inserted upstream to the headend can be at the wrong frequency or at the wrong level, start at the wrong time, not stop, or impair services such as high speed internet, VOD, and cable digital voice services. It could also introduce malware into the system. Under any of these circumstances, the cable operator would need to rapidly isolate the problem to the node, and then to the household, which is a very difficult process. (To protect against such problems, retail DOCSIS modems are subjected to a full certification process, not self-certification as sought by the CEA proposal.) Upstream access to the private cable network must be managed to preserve the integrity and security of the network for all customers that jointly share the network. See NCTA Comments at 62.

10. The DCR+ Proposal Requires Redundant Features

Summary of Failing

CEA justifies its DCR+ proposal as meeting four requirements, each of which is fully satisfied by the OpenCable Platform and recently approved methods for home networking. The burdensome DCR+ proposal is redundant and unnecessary.

Engineering Detail

CEA Appendix A, Page 6 states:

What is needed, additionally, and what CEA and its members have sought in several years of negotiations, is cable industry support for specifications and product licenses that give consumers a wider range of choices with respect to –

- The media sources and streams they can tap in a single device via a single menu and remote control –
- The levels of device sophistication and expense chosen by the consumer to meet the needs and viewing intentions of a particular household –
- Simplicity and reliability of operation, and
- Industry standard connection to other freely competitive products via home networking.

DCR+ is a costly, redundant, obsolete subset of the currently existing and deploying OpenCable Platform, and it would plunge the cable industry into a quagmire of unprecedented intrusive regulations. Nothing in the OpenCable Platform prevents fulfillment of the first three bullets in the box above. In fact, the OpenCable Platform provides the greatest simplicity and reliability of operation for a wider array of current and future cable services. With respect to bullet 4, CableLabs has approved DTCP-IP for home networking, and the OpenCable Platform includes home networking extensions.

EXHIBIT B

DMAS WITH OPENCABLE SUPPORT – DECEMBER, 2008*

ALBANY-SCHENECTADY-TROY	ELMIRA (CORNING)
ALBUQUERQUE-SANTA FE	ERIE
AMARILLO	EUGENE
ATLANTA	EVANSVILLE
AUGUSTA	FLINT-SAGINAW-BAY CITY
AUSTIN	FRESNO-VISALIA
BAKERSFIELD	FT. MYERS-NAPLES
BALTIMORE	FT. WAYNE
BANGOR	GAINESVILLE
BEAUMONT-PORT ARTHUR	GRAND JUNCTION-MONTROSE
BINGHAMTON	GRAND RAPIDS-KALMZOO-B.CRK
BIRMINGHAM (ANN, TUSC)	GREEN BAY-APPLETON
BLUEFIELD-BECKLEY-OAK HILL	GREENSBORO-H.POINT-W.SALEM
BOISE	GREENVILLE-N.BERN-WASHNGTN
BOSTON (MANCHESTER)	GREENVLL-SPART-ASHEVLL-AND
BOWLING GREEN	GREENWOOD-GREENVILLE
BUFFALO	HARLINGEN-WSLCO-BRNSVL-
BURLINGTON-PLATTSBURGH	MCA
CHAMPAIGN&SPRNGFLD-	HARRISBURG-LNCSTR-LEB-YORK
DECATUR	HARRISONBURG
CHARLESTON, SC	HARTFORD & NEW HAVEN
CHARLESTON-HUNTINGTON	HATTIESBURG-LAUREL
CHARLOTTE	HONOLULU
CHARLOTTESVILLE	HOUSTON
CHATTANOOGA	HUNTSVILLE-DECATUR (FLOR)
CHICAGO	INDIANAPOLIS
CHICO-REDDING	JACKSON, MS
CINCINNATI	JACKSONVILLE
CLARKSBURG-WESTON	JOHNSTOWN-ALTOONA
CLEVELAND-AKRON (CANTON)	KANSAS CITY
COLORADO SPRINGS-PUEBLO	KNOXVILLE
COLUMBIA, SC	LANSING
COLUMBUS, GA	LAREDO
COLUMBUS, OH	LEXINGTON
COLUMBUS-TUPELO-WEST POINT	LIMA
CORPUS CHRISTI	LINCOLN & HASTINGS-KRNY
DALLAS-FT. WORTH	LITTLE ROCK-PINE BLUFF
DAYTON	LOS ANGELES
DENVER	LOUISVILLE
DETROIT	MACON
DOTHAN	MANKATO
EL PASO (LAS CRUCES)	MEMPHIS

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MERIDIAN
MIAMI-FT. LAUDERDALE
MILWAUKEE
MINNEAPOLIS-ST. PAUL
MOBILE-PENSACOLA (FT WALT)
MONROE-EL DORADO
MONTEREY-SALINAS
MYRTLE BEACH-FLORENCE
NASHVILLE
NEW ORLEANS
NEW YORK
NORFOLK-PORTSMTH-NEWPT
NWS
OMAHA
ORLANDO-DAYTONA BCH-
MELBRN
PADUCAH-CAPE GIRARD-HARSBG
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PRESQUE ISLE
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RALEIGH-DURHAM (FAYETVLL)
RENO
RICHMOND-PETERSBURG
ROANOKE-LYNCHBURG
ROCHESTER, NY
SACRAMNTO-STKTON-MODESTO
SALISBURY
SALT LAKE CITY
SAN ANTONIO
SAN DIEGO
SAN FRANCISCO-OAK-SAN JOSE
SANTABARBRA-SANMAR-
SANLUOB
SAVANNAH
SEATTLE-TACOMA
SHREVEPORT
SOUTH BEND-ELKHART
SPOKANE
SPRINGFIELD-HOLYOKE
SYRACUSE

TALLAHASSEE-THOMASVILLE
TAMPA-ST. PETE (SARASOTA)
TERRE HAUTE
TOLEDO
TRI-CITIES, TN-VA
TUCSON (SIERRA VISTA)
TULSA
UTICA
WACO-TEMPLE-BRYAN
WASHINGTON, DC(HAGERSTOWN)
WATERTOWN
WEST PALM BEACH-FT. PIERCE
WHEELING-STEUBENVILLE
WICHITA FALLS & LAWTON
WICHITA-HUTCHINSON PLUS
WILKES BARRE-SCRANTON
WILMINGTON
YOUNGSTOWN
YUMA-EL CENTRO
ZANESVILLE

1 **EXHIBIT C**

2 **Proposed Regulations**

3 **Topical Cross-Reference for Proposed Rules**

4 **Support for IDCR Access to Interactive Services - §§ 76.5, 76.640, 76.641**

5 **IDCR Access to Interactive Services - §§ 15.3, 15.124**

6 **Output Control - § 76.1903**

7 **Conforming Amendments - §§ 15.38, 15.123, 76.602, 76.640, 76.1902, 16.1908**

8 **Proposed Regulations**

9 Part 15 of the Code of Federal Regulations is amended as follows:

10 **PART 15 – RADIO FREQUENCY DEVICES**

11 1. The authority for Part 15 continues to read as follows:

12 **AUTHORITY:** 47 U.S.C. 154, 302a, 303, 304, 307, 336, and
13 544a.

14 2. Amend §15.3 by adding paragraph (hh) to read as follows:

15 **§15.3 Definitions.**

16 *********

17 (hh) OpenCable host. Two-way devices that accept a
18 point of deployment module, meet the requirements of OC-SP-
19 HOST2.1-CFR-I01-070720, “OpenCable Host Device 2.1 Core
20 Functional Requirements” (incorporated by reference, see §15.38),
21 including OC-SP-OCAP1.1-I01-061229, “OpenCable Application
22 Platform Specification” (incorporated by reference, see §15.38),
23 and are capable of receiving interactive cable services, which
24 include, but are not limited to, devices connected to digital
25 cable systems.

26 3. Amend §15.38 by revising paragraph (c) to read as follows:⁶⁸

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⁶⁸ Items in double underline have been previously agreed to in cable and consumer electronics FCC filings on March 10, 2004 to implement the joint cable-CE agreement on testing of UDCPs. Items in single underline were agreed upon in a November 13, 2006 joint submission by CableLabs, TiVo, Motorola, Solekai, Digeo, Digital Keystone and ViXs to implement Multi-stream CableCARDs for UDCPs.

1 **§15.38 Incorporation by reference.**

2
3 *****

4 (c) The following materials are freely available from at
5 least one of the following addresses: Cable Television
6 Laboratories, Inc., 858 Coal Creek Circle, Louisville, Colorado,
7 80027, www.cablelabs.com/udcp; or at Consumer Electronics
8 Association, 2500 Wilson Blvd., Arlington, VA 22201,
9 http://www.ce.org/public_policy.

10
11 (1) Uni-Dir-PICS-I03-040831:⁶⁹ “Uni-Directional
12 Receiving Device: Conformance Checklist: PICS Proforma,” 2003,
13 IBR approved for §15.123.

14
15 (2) Uni-Dir-ATP-I05-040629: “Uni-Directional Receiving
16 Device Acceptance Test Plan,” 2004, IBR approved for §15.123.

17
18 (3) OC-SP-OCAP1.1-I01-061229⁷⁰: “OpenCable
19 Application Platform Specification,” IBR approved for §15.123.

20
21 (4) OC-SP-HOST2.1-CFR-I01-070720: “OpenCable Host
22 Device 2.1 Core Functional Requirements,” IBR approved for
23 §15.123.

24
25 (5) M-UDCP-PICS-I03-070510: “Uni-Directional Cable
26 Product Supporting M-Card: Multiple Profiles Conformance
27 Checklist: PICS,” IBR approved for §15.123.

28
29 (6) TP-ATP-M-UDCP-I03-20070510: “Uni-Directional
30 Digital Cable Products Supporting M-Card M-UDCP Device
31 Acceptance Test Plan,” IBR approved for §15.123.

- 32
33 4. Amend §15.123 by revising paragraphs (c)(1)-(6) to read as
34 follows:

35
36 **§15.123 Labeling of digital cable ready products.**

37
38 *****

39 (c) ***

40
41 (1) The manufacturer or importer shall have a sample of its
42 first model of a unidirectional digital cable product tested to show
43 compliance with the procedures set forth in Uni-Dir-PICS-I03-

⁶⁹ This reference updates the reference currently contained in Commission rules.

⁷⁰ This reference updates the reference currently contained in Commission rules. Other references in the proposed rules have likewise been updated to current versions.

1 040831: “Uni-Directional Receiving Device: Conformance
2 Checklist: PICS Proforma” (incorporated by reference, see §15.38)
3 at a qualified test facility. If the model fails to comply, the
4 manufacturer or importer shall have any modifications to the
5 product to correct failures of the procedures in Uni-Dir-PICS-I03-
6 040831: “Uni-Directional Receiving Device: Conformance
7 Checklist: PICS Proforma” (incorporated by reference, see §15.38)
8 retested at a qualified test facility and the product must comply
9 with the applicable procedures in Uni-Dir-ATP-I05-040629: “Uni-
10 Directional Receiving Device Acceptance Test Plan,”
11 (incorporated by reference, see §15.38)⁷¹ before the product or any
12 related model may be labeled or marketed. If the manufacturer or
13 importer’s first unidirectional digital cable product is not a
14 television, then that manufacturer or importer’s first model of a
15 unidirectional digital cable product which is a television shall be
16 tested pursuant to this subsection as though it were the first
17 unidirectional digital cable product.

18
19 (2) A qualified test facility is a testing laboratory
20 representing cable television system operators serving a majority
21 of the cable television subscribers in the United States or an
22 appropriately qualified independent laboratory with adequate
23 equipment and competent personnel knowledgeable with respect to
24 the standards referenced in paragraph (b) of this section concerning
25 the procedures set forth in Uni-Dir-PICS-I03-040831:⁷² “Uni-
26 Directional Receiving Device: Conformance Checklist: PICS
27 Proforma” (incorporated by reference, see §15.38) and with Uni-
28 Dir-ATP-I05-040629:⁷³ “Uni-Directional Receiving Device
29 Acceptance Test Plan,” (incorporated by reference, see §15.38).
30 For any independent testing laboratory to be qualified hereunder
31 such laboratory must ensure that all its decisions are impartial and
32 have a documented structure which safeguards impartiality of the
33 operations of the testing laboratory. In addition, any independent
34 testing laboratory qualified hereunder must not supply or design
35 products of the type it tests, nor provide any other products or
36 services that could compromise confidentiality, objectivity or
37 impartiality of the testing laboratory’s testing process and
38 decisions.

39
40 (3) Subsequent to the testing of its initial unidirectional
41 digital cable product model, a manufacturer or importer is not

⁷¹ As originally filed by NCTA-CEA, this read “§15.38. According to current Commission drafting standards, this should read “Uni-Dir-ATP- I05-040629⁷¹: “Uni-Directional Receiving Device Acceptance Test Plan,” 2004, (incorporated by reference, see § 15.38).”

⁷² This reference updates the reference currently contained in Commission rules.

⁷³ This reference updates the reference currently contained in Commission rules.

1 required to have other models of unidirectional digital cable
2 products tested at a qualified test facility for compliance with the
3 procedures of Uni-Dir-PICS-I03-040831: “Uni-Directional
4 Receiving Device: Conformance Checklist: PICS Proforma”
5 (incorporated by reference, see §15.38) unless the first model
6 tested was not a television, in which event the first television shall
7 be tested as provided in §15.123(c)(1). The manufacturer or
8 importer shall ensure that all subsequent models of unidirectional
9 digital cable products comply with the procedures in the Uni-Dir-
10 PICS-I03-040831: “Uni-Directional Receiving Device:
11 Conformance Checklist: PICS Proforma” (incorporated by
12 reference, see §15.38) and all other applicable rules and standards.
13 The manufacturer or importer shall maintain records indicating
14 such compliance in accordance with the verification procedure
15 requirements in part 2, subpart J of this chapter. The manufacturer
16 or importer shall further submit documentation verifying
17 compliance with the procedures in the Uni-Dir-PICS-I03-040831:
18 “Uni-Directional Receiving Device: Conformance Checklist: PICS
19 Proforma” (incorporated by reference, see §15.38) to the testing
20 laboratory representing cable television system operators serving a
21 majority of the cable television subscribers in the United States.
22

23 (4) Unidirectional digital cable product models must be
24 tested for compliance with Uni-Dir-PICS-I03-040831: “Uni-
25 Directional Receiving Device: Conformance Checklist: PICS
26 Proforma” (incorporated by reference, see §15.38) in accordance
27 with Uni-Dir-ATP-I05-040629: “Uni-Directional Receiving
28 Device Acceptance Test Plan,” (incorporated by reference, see
29 §15.38) or an equivalent test procedure that produces identical
30 pass/fail test results. In the event of any dispute over the
31 applicable results under an equivalent test procedure, the results
32 under Uni-Dir-ATP-I05-040629: “Uni-Directional Receiving
33 Device Acceptance Test Plan,” (incorporated by reference, see
34 §15.38) shall govern.
35

36 (5) This subsection applies to unidirectional digital cable
37 product models which utilize Point-of-Deployment modules
38 (PODs) in multi-stream mode (M-UDCPs).⁷⁴
39

40 (i) The manufacturer or importer shall have a sample of its
41 first model of a M-UDCP tested at a qualified test facility to show
42 compliance with the M-UDCP-PICS-I03-070510: “Uni-Directional
43 Cable Product Supporting M-Card: Multiple Profiles Conformance

⁷⁴ Items in single underline were agreed upon in a November 13, 2006 joint submission by CableLabs, TiVo, Motorola, Solekai, Digeo, Digital Keystone and ViXs to implement Multi-stream CableCARDS for UDCPs.

1 Checklist: PICS,” (incorporated by reference, see §15.38) as
2 specified in the procedures set forth in TP-ATP-M-UDCP-I03-
3 20070510: “Uni-Directional Digital Cable Products Supporting M-
4 Card M-UDCP Device Acceptance Test Plan,” (incorporated by
5 reference, see §15.38).⁷⁵ If the model fails to comply, the
6 manufacturer or importer shall have retested, at a qualified test
7 facility, a product that complies with the applicable tests and
8 procedures in §15.38 before any product or related model may be
9 labeled or marketed. If the manufacturer or importer’s first M-
10 UDCP is not a television, then that manufacturer or importer’s first
11 model of a M-UDCP which is a television shall be tested pursuant
12 to this subsection as though it were the first M-UDCP.⁷⁶

13
14 (ii) Subsequent to the successful testing of its initial M-
15 UDCP, a manufacturer or importer is not required to have other M-
16 UDCP models tested at a qualified test facility for compliance with
17 M-UDCP-PICS-I03-070510 (incorporated by reference, see
18 §15.38) unless the first model tested was not a television, in which
19 event the first television shall be tested as provided in
20 §15.123(c)(5)(i). The manufacturer or importer shall ensure that
21 all subsequent models of M-UDCPs comply with M-UDCP-PICS-
22 I03-070510 (incorporated by reference, see §15.38) and all other
23 applicable rules and standards. The manufacturer or importer shall
24 maintain records indicating such compliance in accordance with
25 the verification procedure requirements in part 2, subpart J of this
26 chapter. For each M-UDCP model, the manufacturer or importer
27 shall further submit documentation verifying compliance with M-
28 UDCP-PICS-I03-070510: “Uni-Directional Cable Product
29 Supporting M-Card: Multiple Profiles Conformance Checklist:
30 PICS,” to the testing laboratory representing cable television
31 system operators serving a majority of the cable television
32 subscribers in the United States.

⁷⁵ As originally filed by NCTA-CEA, the reference read “both references”. According to current Commission drafting standards, the words “both references” should be deleted and IBR should be repeated as shown here.

⁷⁶ As originally submitted by CableLabs, TiVo, Motorola, Solekai, Digeo, Digital Keystone and ViXs, the entire definition in 15.123(c)(2) was reproduced here: “A qualified test facility is a testing laboratory representing cable television system operators serving a majority of the cable television subscribers in the United States or an appropriately qualified independent laboratory with adequate equipment and competent personnel knowledgeable with respect to the references noted in §15.38. For any independent testing laboratory to be qualified hereunder such laboratory must ensure that all its decisions are impartial and have a documented structure which safeguards impartiality of the operations of the testing laboratory. In addition, any independent testing laboratory qualified hereunder must not supply or design products of the type it tests, nor provide any other products or services that could compromise confidentiality, objectivity or impartiality of the testing laboratory’s testing process and decisions.”

1 (iii) M-UDCPs must be in compliance with M-UDCP-
2 PICS-I03-070510(incorporated by reference, see §15.38) in
3 accordance with the procedures set forth in TP-ATP-M-UDCP-
4 I03-20070510 (incorporated by reference, see §15.38), or an
5 equivalent test procedure that produces identical pass/fail test
6 results. In the event of any dispute over the applicable results
7 under an equivalent test procedure, the results under TP-ATP-M-
8 UDCP-I03-20070510: “Uni-Directional Digital Cable Products
9 Supporting M-Card M-UDCP Device Acceptance Test Plan,”
10 (incorporated by reference, see §15.38) shall govern.

11
12 5. Add §15.124 to subpart B to read as follows:

13
14 **§15.124 Interactive digital cable ready products.**

15
16 (a) The requirements of this section shall apply to
17 interactive digital cable products. Interactive digital cable
18 products are OpenCable hosts connected to digital cable
19 systems.

20
21 (b) An interactive digital cable product may not be
22 labeled with or marketed using the term “IDCR,” “Interactive
23 Digital Cable Ready,” “IDCP,” or “Interactive Digital Cable
24 Product” or otherwise indicate that the device accepts a POD
25 for interactive digital cable service, or convey the impression
26 that the device is compatible with interactive digital cable
27 service unless it implements, at a minimum, the requirements
28 of this section.

29
30 (c) Before a manufacturer’s or importer’s interactive
31 digital cable product may be marketed, it must be tested to show
32 compliance with the requirements of OC-SP-HOST2.1-CFR-I01-
33 070720, “OpenCable Host Device 2.1 Core Functional
34 Requirements” (incorporated by reference, see §15.38), including
35 OC-SP-OCAP1.1-I01-061229, “OpenCable Application Platform
36 Specification,” (incorporated by reference, see §15.38) at a
37 qualified test facility, as defined in §15.123(c)(2), or as otherwise
38 provided by applicable license or specification.

39
40 (d) An interactive digital cable product is deemed to meet
41 the foregoing requirements if it meets successor specifications or
42 extensions published by the testing laboratory representing cable
43 television system operators serving a majority of the cable
44 television subscribers in the United States.

45
46 Part 76 of the Code of Federal Regulations is amended as follows:

1
2 PART 76 – MULTICHANNEL VIDEO AND CABLE TELEVISION SERVICE
3

4 6. The authority for Part 76 continues to read as follows:
5

6 AUTHORITY: 47 U.S.C. 151, 152, 153, 154, 301, 302, 302a, 303,
7 303a, 307, 308, 309, 312, 315, 317, 325, 339, 340, 341, 503, 531,
8 522, 531, 532, 534, 535, 536, 537, 543, 544, 544a, 545, 548, 549,
9 552, 554, 556, 558, 560, 561, 571, 572, and 573.
10

11 7. Amend §76.5 by adding paragraphs (rr) and (ss) to read as follows:
12

13 **§76.5 Definitions.**
14

15 *****
16

17 (rr) CableCARD. A point of deployment module that
18 complies with the standards specified in OC-SP-CCIF2.0-I11-
19 070615: “CableCARD Interface 2.0 Specification” (incorporated
20 by reference, see §76.602) and OC-SP-CCCP2.0-I07-070615:
21 “CableCARD Copy Protection 2.0 Specification” (incorporated by
22 reference, see §76.602).
23

24 (ss) OpenCable Platform. OC-SP-OCAP1.1-I01-061229:
25 “OpenCable Application Platform Specification,” (incorporated by
26 reference, see §76.602).
27

28 8. Amend §76.602 by adding paragraph (c) to read as follows:
29

30 **§76.602 Incorporations by reference.**
31

32 *****
33

34 (c) The following materials are freely available from at
35 least one of the following addresses: Cable Television
36 Laboratories, Inc., 858 Coal Creek Circle, Louisville, Colorado,
37 80027 or at <http://www.cablelabs.com/udcp>; or at Consumer
38 Electronics Association, 2500 Wilson Blvd., Arlington, VA 22201
39 or at http://www.ce.org/public_policy.
40

41 (1) OC-SP-CCIF2.0-I11-070615: “CableCARD Interface
42 2.0 Specification,” IBR approved for §76.5.
43

44 (2) OC-SP-CCCP2.0-I07-070615: “CableCARD Copy
45 Protection 2.0 Specification,” IBR approved for §76.5.
46

(3) OC-SP-OCAP1.1-I01-061229: “OpenCable Application

Platform Specification,” IBR approved for §76.5.

9. Amend §76.640 (b)(1)(iv) by revising paragraph (iv) introductory text and paragraphs (B) and (C) to read as follows:⁷⁷:

§76.640 Support for unidirectional digital cable products on digital cable systems.

(b) ***

(1) ***

(iv) For each digital transport stream that includes one or more available audio/video services carried in-the-clear, such transport stream shall include virtual channel data in-band in the form of ATSC Document A/65B: “ATSC Standard: Program and System Information Protocol for Terrestrial Broadcast and Cable (Revision B)” (incorporated by reference, see §76.602), when available from the content provider. With respect to in-band transport:

(A) ***

(B) PSIP data describing a twelve-hour time period shall be carried for each service in the transport stream. This twelve-hour period corresponds to delivery of the following event information tables: EIT-0, -1, -2 and -3. Additional event information tables may be carried at the option of the cable operator;

(C) The format of event information data format shall conform to ATSC Document A/65B: “ATSC Standard: Program and System Information Protocol for Terrestrial Broadcast and Cable (Revision B)” (incorporated by reference, see §76.602). Cable operators are not required to correct event information data that does not conform to ATSC A/65B;

10. Amend §76.640 by revising paragraph (b)(4)(ii) to read as follows;

⁷⁷ Amendments concerning PSIP were previously filed in NCTA’s Petition for Reconsideration of December 29, 2003.

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(b) ***

(4) ***

(ii) Effective July 1, 2005, include a DVI or HDMI interface on all high definition set-top boxes acquired by a cable operator for distribution to customers.⁷⁸

11. Add §76.641 to subpart B to read as follows:

§76.641 Support for interactive digital cable ready products on digital cable systems.⁷⁹

(a) The requirements of this section shall apply to digital cable systems subject to §76.1204(a)(1) with an activated channel capacity of 750 MHz or greater serving 5,000 or more subscribers. For purposes of this section, digital cable systems shall be defined as a cable system with one or more channels utilizing QAM modulation for transporting programs and services from its headend to receiving devices.

(b) Each cable operator serving more than 2,000,000 multichannel video programming subscribers nationwide shall provide network support for the OpenCable Platform to at least 50% of its subscribers served by digital cable systems with an activated channel capacity of 750 MHz or greater serving 5,000 or more subscribers by July 1, 2008, and 100% of such subscribers by December 31, 2008.

(c) No later than twenty-four months after the effective date of this section, all digital cable systems shall provide network support for the OpenCable Platform to its digital cable systems with an activated channel capacity of 750 MHz or greater serving 5,000 or more subscribers.

(d) A digital cable system is deemed to meet the foregoing requirements if it meets one or more successor specifications or extensions published by the testing laboratory representing cable

⁷⁸ This change would require 1394 ports to be made available on HD set-top boxes on customer request, but not on every deployed HD set-top box.

⁷⁹ Nothing in this proposal would prohibit the Commission from granting small system or other waivers in appropriate circumstances, including financial hardship.

1 television system operators serving a majority of the cable
2 television subscribers in the United States.

3
4 (e) Cable operators shall ensure, as to all digital cable
5 systems, an adequate supply of CableCARDS for convenient access
6 by customers.

7
8 (f) Except for the support set forth herein, a digital cable
9 system is not required to use or support any other technology for
10 delivery of cable services and applications.

- 11
12
13 12. Amend 76.1902 by revising paragraph (s) to read as follows:⁸⁰

14
15 **§76.1902 Definitions**

16
17 *****

18
19 s) Unencrypted broadcast television means any service,
20 program, or schedule or group of programs, that is a further
21 transmission of a broadcast transmission (i.e., an over-the-air
22 transmission for reception by the general public using radio
23 frequencies allocated for that purpose) that substantially
24 simultaneously is made by a terrestrial television broadcast station
25 located within the country or territory in which the entity further
26 transmitting such broadcast transmission also is located, where
27 such broadcast transmission is not subject to a commercially-
28 adopted access control method (e.g., is broadcast in the clear to
29 members of the public receiving such broadcasts), regardless of
30 whether such entity subjects such further transmission to an access
31 control method.

32
33 *****

- 34
35 13. Amend 76.1903 to read as follows:

36
37 **§76.1903 Output Controls**

38
39 A Covered Entity may attach or embed data or information

⁸⁰ This is to correct the erroneous “sua sponte” amendment issued by the Commission in 2003, and restore original terms from the unidirectional MOU. MPAA, HRRC, and NCTA all agreed on this by pleading. See CS Docket 97-80, NCTA Petition for Reconsideration (February 26, 2004), MPAA Petition for Reconsideration (February 27, 2004), HRRC Comments (April 29, 2004), and MPAA Reply Comments (May 10, 2004).

1 with Commercial Audiovisual Content, or otherwise apply to,
2 associate with, or allow such data to persist in or remain associated
3 with such content, so as to prevent its output through any analog or
4 digital output authorized or permitted under license, law or
5 regulation governing such Covered Product, as follows.
6

7 (a) To prevent or limit the output of Video-on-Demand,
8 Subscription-on-Demand, or Pay-Per-View transmissions by
9 Covered Products through any analog or digital output.
10

11 (b) To prevent or limit the output of Pay Television
12 Transmissions, Non-Premium Subscription Television, and Free
13 Conditional Access Delivery transmissions through any analog or
14 digital output.
15

16 (c) To prevent or limit the output of any Undefined
17 Business Model through any analog or digital output.
18

19 (d) Dispute Resolution
20

21 (1) Complaints. The use of output controls is subject to
22 Commission review upon complaint.
23

24 (2) Complaint Process. Any interested party
25 ("Complainant") may file a complaint with the Commission
26 objecting to application of output controls.
27

28 (i) Pre-complaint resolution. Prior to initiating a complaint
29 with the Commission under this subsection, the Complainant shall
30 notify the Covered Entity that it may file a complaint under this
31 subsection. The notice must be sufficiently detailed so that the
32 Covered Entity can determine the specific nature of the potential
33 complaint. The potential Complainant must allow a minimum of
34 thirty (30) days from such notice before filing such complaint with
35 the Commission. During this period the parties shall endeavor in
36 good faith to resolve the issue(s) in dispute. If the parties fail to
37 reach agreement within this 30 day period, Complainant may
38 initiate a complaint in accordance with the procedures set forth
39 herein.
40

41 (ii) Complaint. Within two years of a Covered Entity's first
42 use of output controls, a Complainant may file a complaint with
43 the Commission objecting to application of the output controls to
44 the service at issue. Such complaint shall state with particularity
45 the basis for objection.
46

1 (A) The complaint shall contain the name and address of
2 the complainant and the name and address of the Covered Entity.
3

4 (B) The complaint shall be accompanied by a certification
5 of service on the named Covered Entity.
6

7 (C) The complaint shall set forth with specificity all
8 information and arguments relied upon. Specific factual allegations
9 shall be supported by a declaration of a person or persons with
10 actual knowledge of the facts, and exhibits shall be verified by the
11 person who prepares them.
12

13 (D) The complaint shall set forth attempts made by the
14 Complainant to resolve its complaint pursuant to paragraph
15 (a)(2)(i) of this section.
16

17 (iii) Public Notice. The Commission shall give public
18 notice of the filing of the complaint. Once the Commission has
19 issued such public notice, any person otherwise entitled to be a
20 Complainant shall instead have the status of a person submitting
21 comments under paragraph (d)(2)(iv) of this section rather than a
22 Complainant.
23

24 (iv) Comments and Reply.
25

26 (A) Any person may submit comments regarding the
27 complaint within thirty (30) days after the date of public notice by
28 the Commission. Comments shall be served on the Complainant
29 and the Covered Entity and on any persons listed in relevant
30 certificates of service, and shall contain a detailed full statement of
31 any facts or considerations relied on. Specific factual allegations
32 shall be supported by a declaration of a person or persons with
33 actual knowledge of the facts, and exhibits shall be verified by the
34 person who prepares them.
35

36 (B) The Covered Entity may file a Response to the
37 Complaint and comments within twenty (20) days after the date
38 that comments are due. Such Response shall be served on all
39 persons who have filed complaints or comments and shall also
40 contain a detailed full showing, supported by affidavit or
41 declaration, of any additional facts or considerations relied on.
42 Replies shall be due ten (10) days from the date for filing a
43 Response.
44

45 (v) Basis for Commission determination. In a permit-but-
46 disclose proceeding, unless otherwise specified by the

1 Commission, to determine whether output controls may be applied,
2 the complainant shall have the burden of proof to establish that
3 application of the output controls is not in the public interest. In
4 making any such determination, the Commission shall take into
5 account the following factors:
6

7 (A) The benefit to consumers of the service, including but
8 not limited to earlier release windows, more favorable terms,
9 innovation or original programming
10

11 (B) The limitation on the consumers' control over the
12 service;
13

14 (C) The reasonable consumer information provided to
15 consumers in association with the exercise of output controls
16

17 (D) The extent to which an offering made available by a
18 Covered Entity with output controls is comparable to an offering
19 made to a substantial number of customers by telephone and DSL
20 providers, Internet, packaged media, or other competing
21 technologies for the distribution of video that are not subject to
22 these rules for output controls.
23

24 (vi) Determination Procedures. The Commission may
25 specify other procedures, such as oral argument, evidentiary
26 hearing, or further written submissions directed to particular
27 aspects, as it deems appropriate.
28

29 (d) The obligations and procedures as to output controls set
30 forth in this section do not apply in the case of a temporary bona
31 fide trial of a service, or in the case of any waiver granted pursuant
32 to §76.7.
33

34 (e) Nothing in this section shall be construed as prohibiting
35 a Covered Entity from encoding, storing or managing Commercial
36 Audiovisual Content within its distribution system or within a
37 Covered Product under the control of a Covered Entity's
38 Commercially Adopted Access Control Method, provided that the
39 outcome for the consumer from the application of the output
40 control rules set out in this section is unchanged thereby when such
41 Commercial Audiovisual Content is released to consumer control.

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14. Add 76.1908 to Subpart W to read as follows:

§76.1908 Sunset.

Sections 76.1902-.1906 shall cease to apply if any amendment to Title 17 of the US Code permits the copying of Commercial Audiovisual Content provided by a Covered Entity to a Covered Product which has been lawfully Encoded under this Part to prevent or limit the copying thereof.

Exhibit D-1

Critique of CEA's Proposed Changes to the DFAST License

The existing DFAST license was established based upon the Memorandum of Understanding that was approved by the Commission in 2003. Under the terms of this existing DFAST license, 26 CE manufacturers have had over 568 Unidirectional Digital Cable Ready Product (“UDCP”) models certified or verified for use with CableCARDS.⁸¹ The DFAST license is working for its intended purpose, and nothing in the Commission’s Further Notice indicated an intent to reopen its terms.

Nonetheless, CEA’s comments in support of its proposals for a two-way agreement included a proposed re-write of the one-way DFAST agreement. The defects in CEA’s proposed changes are summarized below. It should be noted that CEA did not offer any explanation or justification within its Comments to support its proposed changes, and therefore there is no record upon which the Commission could adopt them.

The DFAST license is available at http://www.cablelabs.com/udcp/downloads/DFAST_Tech_License.pdf.

Use of Cable System Return Path

In the 2003 MOU, the parties specifically agreed that one-way devices could not use the return path of the cable system. Any such use, by definition, would make a device a two-way device. However, CEA now proposes to delete this limitation and insert a sentence which states, “Unidirectional Digital Cable Products shall include devices that are capable of using the return path of the cable system for the purpose of requesting or receiving channels via switched digital service, but not for any other purpose.”

CEA does not offer any details as to the technical means by which such access would be achieved, or any constraint on the access. Unmediated transmission upstream would compromise security and operational integrity. A signal inserted upstream to the headend can be at the wrong frequency, at the wrong level, start at the wrong time, not stop, or impair services such as high- speed Internet, VOD, and VOIP. It could also introduce malware into the system. Fortunately, CEA’s proposed change is not necessary to address the ability of UDCPs to obtain switched digital services, in light of the available solution to the problem described in NCTA’s Comments at 32-34.

Compliance

The existing DFAST agreement states: “Unidirectional Digital Cable Products which include the approved digital outputs or recording technologies specified below must comply with the terms of this Agreement, including but not limited to, the Compliance Rules, Robustness Rules, and the Agreement for Manufacturer Receipt of Digital Certificates Under DFAST License, in addition to the compliance, robustness, or other license requirements associated with the approved digital

⁸¹ CS Docket 97-80, Letter from Neal M. Goldberg to Marlene H. Dortch, NCTA CableCARD report (June 25, 2007).

output or recording technology.” See DFAST Exhibit B, first paragraph. CEA proposes to delete this sentence, without any explanation. There could be no reasonable justification to excuse licensees from compliance with the compliance, robustness and other requirements of the license. It would similarly be unreasonable to allow CEA to create a gaping loophole in the output regulations by not requiring that devices comply with the requirements that had been carefully chosen for approval for such outputs.

Elimination of Analog Content Protection, DFAST Compliance Rules §§ 2.2.1(2), (3)

In the DFAST agreement, the parties agreed to utilize Macrovision specifications for Automatic Gain Control copy control system for certain analog outputs: “Specifications of the Macrovision Copy Protection Process for STB/IRD Products, Revision 7.1.S1, October 1, 1999” for Y,Pb,Pr or Y,R-Y,B-Y outputs, and “Specification of the Macrovision AGC Copy Protection Waveforms for DVD Applications with 525p (480p) Progressive Scan Outputs, Revision 1.1.1 (August 15, 2002)” for 480p progressive scan outputs. CEA now proposes to eliminate reliance on these specifications and instead replace them with meaningless references to specifications “as identified in the FCC IDCR Product Regulations.” CEA has not explained what specifications, if any, are found in the Commission’s regulations to give meaning to its proposed language, and to give adequate assurance of content protection to content owners.

Copy Protection Compliance for High Definition Analog Outputs, DFAST Compliance Rules § 2.3(i)

The existing DFAST agreement requires that all High Definition Analog Outputs shall produce a Constrained Image for all Controlled Content output over High Definition Analog Outputs in response to a Constrained Image Trigger set to require a Constrained Image. It is important to content owners that all devices obey the approved content protection measures. CEA proposes to revise this requirement to say only that “Licensed Products shall be able to constrain, when required by the CIT CCI bit, the resolution of content that is High Definition to be output through a connection capable of transmitting content in High Definition Analog Form, to a Constrained Image.” What is missing from CEA’s proposed revision is a requirement that the device actually produce the Constrained Image that CEA agrees the device must be able to do. CEA has not offered any explanation as to why it should be permitted to dilute the content protection measures in this manner.

Outputs, DFAST Compliance Rules § 2.4

In Sections 2.4.1 and 2.4.2 of the Compliance Rules, CEA proposes to indiscriminately expand the list of approved outputs to any type of DTCP or HDCP output. This proposal would unreasonably and recklessly discard the existing agreement among content owners, the cable industry and CEA reflected in DFAST for the careful and precise selection of approved digital outputs. If outputs on retail devices do not guarantee at least the same level of security provided by the operator’s own devices, a new “digital hole” would be opened that would undo conditional access, copy control, and other tools that cable operators need to convince content owners to make available their high-value content on cable without having to fear widespread unauthorized redistribution and copying of such programming.

Accordingly, in DFAST, the parties agreed to approve only very specifically identified outputs, including a 1394 connection protected by DTCP and either a Digital Visual Interface (DVI) or a High Definition Multimedia Interface (HDMI) protected by High-bandwidth Digital Content Protection (HDCP). Each particular output had specific characteristics which allowed the terms of approval to be crafted with appropriate conditions in specifications, tests, or licenses. CableLabs has now also approved DTCP-IP with specific amendments to the DTCP-IP licensing regime on terms the studios approved as respecting their rights as content providers and the rights of cable operators as distributors. CableLabs is currently in the process of negotiating new language for DFAST and CHILA. That approval came as the result of thorough negotiations in which the proponents of DTCP-IP ultimately agreed to important changes that enabled major motion picture studios to agree to its approval. Studios not only produce major theatrical motion pictures run on broadcast and cable channels and offered via cable system video-on-demand services, but also produce many, if not most, of the major television series carried by cable channels. That experience demonstrates the error of CEA's proposal here: even though DTCP over 1394 had previously been approved, that does not mean that other types of DTCP outputs should automatically be deemed approved as well without any consideration of whether additional protection measures are necessary. CEA's unsupported proposal to sweepingly approve all types of DTCP and HDCP therefore cannot be approved.

CEA also proposes in Section 2.4.5(c) to allow a CE-controlled, non-standards setting organization (DLNA) to unilaterally approve any new content protection technology or digital output which could be used to ingest and redistribute all cable programming without approval from any content provider or any cable operator. CEA's scheme for "output" approval amounts to one-stop shopping for cable programming, free of cost, and free of restriction. Content owners have specifically opposed such a mechanism for approval of digital outputs. *See* MPAA comments at 20 ("DLNA simply does not provide content owners with a fair opportunity to participate in such decisions and thus should not be considered as an appropriate forum for approving digital outputs in two-way devices. In contrast to DLNA, the CableLabs approval process for digital outputs and secure recording technologies has provided both content providers and technology proponents with the chance to play a substantive role in the approval process. CableLabs therefore should oversee any standard approval process endorsed by the Commission for bidirectional equipment, and the FCC should not mandate the approval or use of any other content protection technologies or interfaces.").

Exclusion of Y,Pb,Pr Analog Output, DFAST Compliance Rules §§ 1.8, 2.2.1

DFAST and CHILA apply certain content protection requirements to Y,Pb,Pr outputs based upon the requirements of content owners. Without explanation, CEA deleted references to this output in Sections 1.8 and 2.2.1 of the Compliance Rules.

Unnecessary and Unexplained Qualifier to the Term "Controlled Content", DFAST Compliance Rules §§ 2.1, 3.1

In Sections 2.1 and 3.1 of the Compliance Rules, regarding the protections for the output, copying, recording, and storage of Controlled Content, CEA proposes to limit the scope of the

term “Controlled Content” to “Standard Definition or High Definition Controlled Content.” To the extent that CEA believes that all content is either standard or high definition, this qualification is unnecessary. To the extent that it intends to exclude certain other content from the definition, it has failed to explain or justify such a limitation.

Storage of Controlled Content, DFAST Compliance Rules § 3.6

Without explanation, CEA proposes to delete the following term that places requirements on the storage of Controlled Content, for the purpose of assuring content protection: “A Unidirectional Digital Cable Product may use a user accessible digital interface to store Controlled Content on a storage device, if: (a) the Controlled Content is encrypted across the interface, and in storage, with an encryption algorithm that provides no less security than 128-bit Advanced Encryption Standard (“AES”) or 112-bit Triple DES Encryption Algorithm (“3DES”); (b) the Controlled Content is uniquely cryptographically associated with the original UDCP connected to the storage device, such that Controlled Content is unusable to any other product or device; (c) the interface and storage device, or the system architecture, provides protection from a ‘disk cloning attack’; (d) no key information is stored on the storage device unless encrypted with security no less than AES (128 bit) or 3DES (112 bit); and (e) the move, storage and copying of Controlled Content otherwise meets the criteria set forth in the Robustness Rules and the Compliance Rules.” DFAST Compliance Rules § 3.6 (footnote omitted). CableLabs established these provisions in response to CE requests to allow for storage of such content. CEA does not provide any explanation why it would remove these objective criteria.

Multistream Cards

CEA has deleted the addendum that permits TiVo and other UDCPs to operate in multistream mode. The M-Card interface allows multiple digital video streams to be decrypted simultaneously, even on unidirectional devices. Thus, a cable subscriber using an M-Card-enabled “Plug and Play” device can view one cable channel, while recording another. These provisions had been agreed to by CableLabs, TiVo, Motorola, Solekai, Digeo, Digital Keystone and ViXs.

Exhibit D-2 Critique of CEA “iDFAST” License

The existing CHILA and OCAP Implementer licenses for two-way host devices were negotiated and have been widely accepted by many of the world’s leading television manufacturers, including Samsung, LG and Panasonic. *See* NCTA Comments at 22. Significant input was considered from MPAA and content suppliers, consumer electronics and IT companies, software developers, chip manufacturers, and cable.⁸² Samsung and LG have had their OpenCable DTVs tested and certified under these licenses, and Panasonic expects to release its first OpenCable two-way devices next year.

Despite the commercial success of these existing licenses, CEA nonetheless has proposed substantial changes, which are critiqued below. In many instances, CEA proposes to change the licenses by reducing them to the level of the one-way DFAST license. If the terms of the DFAST license had been sufficient to protect the higher-value content and services at issue with two-way devices, a license limited to one-way devices never would have been necessary in the first place. It is precisely because of the greater need for protection for high-value content and services that both DFAST and CEA’s proposed changes to CHILA are inadequate and would only hurt consumers by impairing cable operators’ ability to obtain the premium content consumers desire.

The CHILA license is available at <http://www.opencable.com/downloads/CHILA.pdf>.

CE Deletion of OCAP Specifications, Host Profiles and Basic Host Requirements

CEA has deleted all requirements to build Host devices that are at least compliant with specifications for interactive Hosts or to include the OpenCable Platform. As discussed in NCTA’s Reply Comments at 22-25, this would mean that Host devices could not receive the cable services subscribers want and pay for and could not operate properly as a networked device. It would also undermine the security common to video, voice, and data; introduce unmediated access to upstream capacity on a shared private network to the detriment of other consumers on the network; and eliminate the content protection tools required by content providers. CEA’s proposal would therefore not only compromise its devices, but the entire network and cable’s ability to deliver high-value programming to any subscriber.

Moreover, CEA has often replaced references to requirements of the OpenCable Specifications with references to the requirements of the “FCC IDCR Product Regulations.” Its proposal is deceptive because in at least most of these instances there is nothing in the Commission’s regulations, or in CEA’s proposed new regulations, that substantively addresses the particular issue in a manner that replaces the existing licenses’ reliance upon OpenCable specifications.

⁸² To date, the following companies have signed the OCAP Implementers License Agreement. Acanetv, Advanced Digital Broadcast (ADB), Alticast Corp., Broadcom, Digeo, DigiSoft.tv, emuse, Engequence, Funai, Intel, Motorola, IDway, Korea Digital Cable Laboratories (KLABS), LG Electronics, Nexel Telecom, OSMOSYS, Pace, Panasonic, Samsung, Scientific-Atlanta, Softel, Tata Elxsi, Texas Instruments, Toshiba, TTA (Telecommunications Technology Association), Video Without Boundaries, Vidiom, VividLogic, Zentek Technology. In addition, MPAA supports OpenCable, *see* MPAA Comments at 24.

Certification Testing

CEA claims that “The CableLabs bi-directional licenses subject the licensee to a certification requirement that is at the sole discretion of CableLabs. A licensee’s product can be denied market access without any recourse or ability to bypass such a process.” CEA Comments at 12. But CEA fails to cite any evidence that certification for cable modems or verification for UDCPs has been used to deny market access to any compliant product. Moreover, the Commission specifically invited parties to bring to the Commission any complaints regarding CableLabs’ certification criteria or its implementation thereof,⁸³ and no party has ever done so.

The one-way MOU specifically provided that IDCs would be subject to a more rigorous testing environment than UDCPs. Sony, Mitsubishi, Philips, Pioneer, Hitachi, JVC, Panasonic/Matsushita, Samsung, Sharp, Thomson, Toshiba, Zenith, and the rest of CEA’s Video Board were parties to the agreement and submitted it to the Commission as part of a comprehensive agreement *Navigation Devices FNPRM*, 18 FCC Rcd at 548.⁸⁴ CEA has nonetheless eliminated comprehensive certification testing from the license for IDCs. The related proposed rules limit testing to the first device only. Comprehensive certification testing is a requirement of content providers. *See* MPAA Comments at 21-22. It is particularly appropriate for two-way devices that send signals upstream across distribution networks shared by all subscribers. *See* Exhibit A hereto (Top 10 Technical Failings of DCR+); NCTA Comments at 62-63. Such testing has long been a feature in technology implementation that has been emulated by the WiMAX Forum for wireless broadband, and is being developed by Advanced Access Content System Licensing Administrator in conjunction with high-definition DVDs. CableLabs follows a similar course with the DOCSIS cable modem, which resulted in considerable success in lowering the costs and expanding the deployment of broadband. This process has also been used to test and approve PacketCable VoIP devices, CableHome devices, and the first CableCARD-enabled bi-directional DTVs. The lack of such certification testing for CE implementations of HDMI led to a cacophony of non-interoperable interfaces that has driven a major national retailer to demand a new testing and certification regime for CE devices to assure interoperability. *See* NCTA Comments at 41, n 75. CableLabs’ testing: (1) follows published, objective tests drafted in cooperation with CE manufacturers; (2) is administered by trained professionals under confidentiality procedures protecting the manufacturer; and (3) is subject to quality assurance, a review panel, and an appeals process. CableLabs’ multiple testing waves are coordinated with the manufacturers’ product deployment cycles. Tests are administered on a cost recovery, not-for-profit basis. Although the CableLabs testing process for unidirectional devices is subject to Commission appeal and review, no manufacturer has availed itself of such appeal for any

⁸³ *Second R&O and Second FNPRM*, 18 FCC Rcd. 20885, ¶ 39 (“Should any party have complaints regarding this implementation, or the certification test suite itself, we will consider them on a case-by-case basis.”).

⁸⁴ The MOU states: “Interoperability Testing and Certification Requirements: Because of the complexity of this type of product, CE Manufacturers agree to a higher level of compliance, and of interoperability testing, leading to self-certification; CE Manufacturers will participate in prototype testing and development of interoperability test suites; further details subject to continued discussion.” Cable has held to the 1-way MOU agreement for 2-way products and offers a path to self-certification under the CHILA Agreement (“CableLabs agrees that it will allow in the future for self-Certification of products by its licensees who have demonstrated through the Certification process that they are consistently capable of building products that are Certified in the first submission for Certification under this Agreement”).

product. The present CHILA and OpenCable licenses also provide a path toward self-verification. *See* NCTA Comments at 23.

Definition of Controlled Content, CEA iDFAST § 1.5

CEA has changed the definition of Controlled Content to restrict its scope to content that is also “permitted by regulation or, in the absence of regulation, by license” to be controlled. The existing licenses already require parties to “comply with all applicable regulations and laws.” § 12.5. This change appears to have the effect of prohibiting the introduction any new content management technologies (for example, introducing a new electronic sell-through model to enable consumers to create DVDs in their home) without express approval in federal regulation. This change would undermine flexibility in delivering high-value content under new business models to consumers.

Definition of IDCP, CEA iDFAST § 1.11

CEA proposes to re-define the term IDCP to mean any product that communicates with a cable headend on an interactive basis, regardless of whether the device will be able to receive all cable operator two-way services. CEA also deleted the terms in the existing license that would enable CE manufacturers to educate consumers by using the CableLabs Certified mark to identify products had been certified as able to receive all cable operator two-way services. CEA is seeking the ability to build devices that do not satisfy consumer expectations that a “cable-ready” device will receive all cable services but make it difficult for consumers to understand this deficiency prior to purchase and use. The resulting consumer confusion and frustration would inevitably lead to customer complaints lodged with cable operators and the Commission.

Misuse of Licensed Technology for Unauthorized Purposes, CHILA § 2.2

CEA refuses to limit the licensed technology to its authorized use. In order to protect the confidentiality and security of the Licensed Technology, the existing licenses limit use of the Licensed Technology to “the creation, manufacture and distribution of the Certified Host Devices.” CHILA § 2.2(c). CEA proposes to delete this basic requirement, apparently to allow manufacturers to use the CableLabs technology for non-compliant purposes, and removing the ability to prevent unauthorized patent infringement. CableLabs, which licenses the DFAST technology from a third party, does not possess the right to sublicense CE for such unauthorized uses.

Safeguards for Have Made Parties, CHILA § 2.5

The CEA proposal eliminates the restrictions and regulations that are necessary to ensure that CableLabs can enforce compliance with the confidentiality and other license requirements by the subcontractors used by licensee (“Have Made Parties”) who have access to confidential information and who produce components and/or complete devices sold under the brand of the licensee. The existing license requires licensee to undertake responsibility for its Have Made Parties' compliance with the license requirements, and to implement necessary agreements to

assure the enforceability of such compliance. CEA's omission of all such terms would create a gaping loophole in the security and enforceability of the license agreements.

Prototypes, CEA iDFAST, § 3.1(c)

CEA removes the limits on the parties to which a licensee may give prototypes and on the number of prototypes that a licensee can produce. Prototypes present a security risk because they include confidential technology and are not required to comply with the robustness protections under the license that otherwise guard against disclosure of such information. Because prototypes can be employed as hacking devices, the existing license limits a licensee to the production of 100 prototypes and restricts their distribution to licensees of CableLabs Technology and to North American MSOs, the only parties that legitimately need them. (The CEA license, by contrast, permits distribution to “Cable Operators *and other entities*” (CEA iDFAST, § 3.1(c), emphasis added). Under current terms, the prototype needs of manufacturers have been practically met, while protecting the security of the underlying cable technology.

Test Tools, CEA iDFAST, § 3.1(b)

Similar to the issue above regarding prototypes, in Section 3.1(b), CEA would remove the restriction on parties to whom the licensee could distribute Test Tools, and in Section 3.2(a), CEA deleted the requirements to “separately maintain records of sales of Test Tools” and to “provide the names and contact information of each purchaser to CableLabs.” These reasonable restrictions are necessary to protect the security of the licensed technology, because test tools can be used to reveal vulnerabilities in security technology and devices. CEA's members agreed to the requirement in DFAST, and even CEA includes the record requirement in its proposed term for Licensed Components (CE iDFAST § 3.3).

Digital Certificate Authorization Agreement, CHILA § 3.2

CEA has removed the requirement to obtain security certificates under the Digital Certificate Authorization Agreement, and substituted security certificates from an Agreement for Manufacturer Receipt of Digital Certificates Under DFAST License. The latter agreement is one which was stripped (in the one-way context) of key security features that are needed, for example, to respond to problems or compromises common to particular models of DTVs, and is therefore not appropriate for two-way devices. This would severely handicap the cable industry and its content providers from identifying compromised devices, which is unacceptable for two-way devices responsible for securing high value content.

Content Protection, CHILA §§ 3.5, 3.6

CEA has removed the content protection requirements of CHILA § 3.6 that controlled content stored within a device be protected by 128 bit AES or 3DES, be uniquely cryptographically bound to the device so that it remains stored, rather than transferred out, be protected against disk cloning attacks, and that keys be commensurately protected. CEA also removed the content protection requirements of CHILA § 3.5(f) that “Copy One Generation” content may only be transmitted to a removable or external recording device if the copy is stored either using an

encryption protocol or other specified methods that would prevent its misuse. CEA's proposal would thereby eliminate carefully-negotiated content protection requirements of content providers and motion picture studios, compromising the protection of content and thus jeopardizing the cable operator's ability to attract and provide high value content to its subscribers.

Production Forecasts, CEA iDFAST, § 4.3

Licensees are currently required to submit production forecasts to CableLabs to assist in managing the availability of CableCARDS at suitable levels. These are held in confidence so that no CE manufacturer's shipping volumes are exposed to the other CE manufacturers. CEA proposes that all such data be routed to CEA, which we understand to be inconsistent with the protection of business confidences that CE manufacturers have requested.

System Renewability Messages, CHILA § 4.7

The most current CHILA agreement provides that devices will be subject to obligations for receiving, acknowledging, honoring, storing, and further distributing System Renewability Messages ("SRM"). SRMs are data files that facilitate the revocation and renewal of compromised devices. A newly published proposed draft requires that IDCPs receive and process all validly received DTCP and HDCP SRMs, pursuant to the newly adopted ATSC A/98 method for transmitting these critical security revocation files. CEA has eliminated references to the overall obligation and to the A/98 method critical to receiving such files. It has reduced the obligations of the receiving device, and thereby compromised a key requirement of content providers. *See* MPAA Comments at 16.

CEA's Limits on the Change Process Would Freeze Innovation, CHILA, § 4 and Exhibit B; CEA iDFAST, § 6

CEA's proposed change process is inflexible and slow compared to the practical process already afforded under the OpenCable process which includes input from CE. CEA would not allow any changes to Specifications except for correction of errors and clarifications, which would freeze existing technology in place rather than allow for updates as technology changes. CEA's process would require at least 12 months, and in some cases longer, prior to the effectiveness of changes, which could result in undue delays in CableLabs' ability to close loopholes in security or update technology. In addition, CEA's change process would let rival CE manufacturers stop others from coming to market with an implementation or extension of the OpenCable Platform, a first bi-directional product, or a new in-home networking solution requiring a new output or content protection technology. *See* NCTA Reply Comments at 30.

The existing change management process for specifications or requirements is one in which CEA members actively participate. In its reports to the Commission, CEA described how its member companies were actively involved in the change process for OCAP. *See, e.g.,* Joint Status Report of the Consumer Electronics Association and the National Cable & Telecommunications Association, CS Docket No. 97-80 (Nov. 30, 2005) at 1-2; Joint Status Report of the Consumer Electronics Association and the National Cable & Telecommunications Association, CS Docket

No. 97-80 at 1-2 (October 14, 2005). CEA's members file most of the engineering change requests (ECRs) under this process. The OpenCable process is open, inclusive, and welcomes those who wish to consult about their differences. *See* NCTA Reply Comments at n. 33 regarding the breadth of parties participating in OpenCable.

Confidentiality, CHILA § 7.1

CEA has carried forward the requirement that Highly Confidential Information should be disclosed only to limited parties, but it has opened the lid on Confidential Information. There is other information that may be exchanged that is proprietary and confidential that is not within the definition of "Highly Confidential Information." The existing license limits distribution of such information on a need-to-know basis: "Subject to the requirements of this Section 7.1, Licensee may disclose Licensed Know-How that does not constitute Highly Confidential Information (as defined below) to its Affiliates, subcontractors, consultants, agents, employees, customers and representatives who have a need to know." CEA deleted this requirement. Licensees should not be permitted, as CEA proposes, to disclose sensitive, confidential information, which would jeopardize the security and business arrangements under which cable services are delivered and various devices are developed.

Audits, CEA iDFAST § 7.1(d)

CEA's proposal only nominally carries forward CableLabs' right to audit a licensee's implementation of security measures. By deleting the provision that Verisign, a well-regarded and trusted security company, is one approved auditor, and instead requiring mutual agreement on an auditor-to-be-named prior to audit, CEA has given the licensee the effective ability to veto and/or seriously delay any audit of its secure handling of highly confidential information, which would jeopardize the security of the licensed technology and the cable network.

Remedies for Non-compliance and Breach, OpenCable Implementers Agreement § 8

Because two-way IDCs can receive and output cable's highest-value interactive content, such as early release video-on-demand, Samsung, Panasonic, LG and the other CE companies that commercially negotiated OCAP and CHILA licenses all agreed to a liability cap of \$5 million per instance of material breach. This is found in Section 8 of the OpenCable Implementers' Agreement, which, under the existing CHILA agreement, is a necessary adjunct agreement to produce two-way licensed products. CEA proposes to reduce the maximum liability by 80%, to a \$1 million cap. Moreover, CEA would exempt licensees from all but token damages unless it could be proven that the licensee had acted willfully and in bad faith. Given the higher stakes with IDCs and the two-way content they are responsible for securing, cable operators need to be assured that CE manufacturers share in the incentive to guard against breaches of confidentiality and non-compliant devices that jeopardize the security of cable services and content. There is no requirement that CE manufacturers enable their devices to be "digital cable ready;" it is entirely their option. But, if they choose to do so, they cannot reasonably ask the government to grant them an exemption from commercial liability for their use of a private shared network resource.

Representations and Warranties, CHILA § 9.2

It is essential to the security of cable services that IDCPs do not contain any device or functionality that enables unauthorized copying or recording of Controlled Content or that interferes with or disables the ability of a Cable Operator to communicate with or disable a CableCARD or services being transmitted through a CableCARD. It is likewise essential that IDCPs respect copy protection and are designed to effectively frustrate tampering and reverse engineering directed towards defeating copy protection requirements in accordance with the Robustness Rules. The existing license therefore reasonably requires Licensees to represent and warrant that their IDCPs will comply with these requirements at the time of manufacture. CEA's proposal eliminates every one of these requirements and fails to offer any substantive warranty to protect content, including high-value high definition video-on-demand programming, from unauthorized hacking, copying or redistribution.

Notification of Known Infringement, CHILA § 11

CEA has eliminated the existing license requirement to even report known security breaches or compromises to the cable industry. Because of the critical importance of rapid action to close any security breaches, the existing license reasonably requires each party to "promptly notify the other in writing of any apparent infringement or misappropriation of the DFAST Technology by any third party that is known to or comes to the attention of such party." CEA's proposal does not include this requirement or any comparable safeguard.

Third Party Beneficiary Claims, CHILA § 14.1(b)

The existing commercially-negotiated CHILA license provides for several prerequisites before a Third Party Beneficiary can seek damages against a licensee for breach. CEA proposes to add an entirely unnecessary and counterproductive additional hurdle that a Third Party Beneficiary would have to clear before raising a claim: a requirement that "the potential for a cure at low cost at the headend for the relevant service has been evaluated as a reasonable alternative." In the commercial negotiations leading to the commercial acceptance of existing licenses for two-way content, all parties recognized that it is not reasonable or practical to require cable operators to retrofit headends to accommodate a defective CE device whose deficiencies have led to a breach of the license. (Among other reasons, in the MOU, CE agreed that "[t]he design of [CE products] may not impose additional investment requirements on the cable distribution network.") It should therefore be unnecessary for a Third Party Beneficiary to spend time and resources evaluating such options before proceeding with a claim.

Changes to Output Specifications, CHILA Compliance Rules §§ 1.6, 1.7

The existing license defines DTCP and HDCP based on only a subset of industry specification documents (the 5C Digital Transmission Content Protection Release 1.0 and the High-Bandwidth Digital Content Protection System, Rev. 1.1, respectively). The licenses allow for amendments to such specifications that may occur from time to time and for supplements for the OpenCable environment. CEA deleted this updating provision in its proposed agreement. This would needlessly freeze technology to outdated versions. High-Bandwidth Digital Content Protection

System rev. 1.0. has already been updated to revision 1.1 since DFAST was adopted. DTCP has been updated with additional proximity controls that can be used to provide consumers with greater use of controlled content on home networks while still restricting its unauthorized dissemination onto the Internet. Specifications must be adaptable to address marketplace needs. CEA would freeze innovation and ignore marketplace realities. *See* NCTA Comments at 39-46 and NCTA Reply at 31, 36-39.

Exclusion of Y,Pb,Pr Analog Output, CHILA Compliance Rules §§ 1.8, 2.2.1

DFAST and CHILA apply certain content protection requirements to Y,Pb,Pr outputs based upon the requirements of content owners. Without explanation, CEA deleted references to this output in Sections 1.8 and 2.2.1 of the Compliance Rules.

Unnecessary and Unexplained Qualifier to the Term “Controlled Content,” CHILA Compliance Rules §§ 2.1, 3.1

In Sections 2.1 and 3.1 of the Compliance Rules, regarding the protections for the output, copying, recording, and storage of Controlled Content, CEA proposes to limit the scope of the term “Controlled Content” to “Standard Definition or High Definition Controlled Content.” To the extent that CEA believes that all content is either standard or high definition, this qualification is unnecessary. To the extent that it intends to exclude certain other content from the definition, it has failed to explain or justify such a limitation.

Subversion of Output Rules through Use of Internal Devices, CHILA Compliance Rules § 2.1

The existing license provides that “an output shall be deemed to include, but not be limited to, any transmissions to any internal copying, recording, or storage device [that does not itself comply with the Compliance Rules and the Robustness Rules].” Compliance Rules, § 2.1. CEA proposes to eliminate this definition in an attempt to eliminate protections that apply to the security of copies of controlled content within a device. CEA’s proposed loophole would undermine security and content protection. The Commission should also note that, at the request of CE parties, CableLabs added a provision to the CHILA Compliance Rules to enable the storage of Controlled Content, but (as explained below in Temporary Storage of Copy Never Content, CHILA Compliance Rules § 3.4.1) CEA deleted that provision from its proposal.

VGA, CHILA Compliance Rules § 2.2.2

CEA proposes to hamper the digital transition by failing to sunset unprotected analog VGA outputs. VGA outputs are high resolution outputs, most commonly used in computers, that were provided some limited use as the computer industry migrated to protected interfaces. In conjunction with the sunset of unprotected interfaces by content providers in similar technology licensing arenas, the license provided for a sunset as of December 31, 2005. CEA has omitted the sunset and allowed content that is nominally protected to be “output” without restriction via newly installed VGA ports (like DTCP and AACS). Unprotected ports allow content that has been licensed for use under content and copy protection rules to be extracted,

digitized, and sent out on the internet for unauthorized copying and use. The DTCP license managed by the “5C” companies (Sony, Intel, Panasonic, Toshiba and Hitachi) contains a December 2005 sunset provision for VGA. As proposed by CEA, cable would uniquely leave open these unprotected analog outputs and undermine the digital transition.

Copy Protection Compliance for High Definition Analog Outputs, CHILA Compliance Rules § 2.3(i)

The existing DFAST agreement requires that all High Definition Analog Outputs shall produce a Constrained Image for all Controlled Content output over High Definition Analog Outputs in response to a Constrained Image Trigger set to require a Constrained Image. It is important to content owners that all devices obey the approved content protection measures. CEA proposes to revise this requirement to say only that “Licensed Products shall be able to constrain, when required by the CIT CCI bit, the resolution of content that is High Definition to be output through a connection capable of transmitting content in High Definition Analog Form, to a Constrained Image.” What is missing from CEA’s proposed revision is a requirement that the device actually produce the Constrained Image that CEA agrees the device must be able to do. CEA has not offered any explanation as to why it should be permitted to dilute the content protection measures in this manner.

Outputs, CHILA Compliance Rules § 2.4

In Sections 2.4.1 and 2.4.2 of the Compliance Rules, CEA proposes to indiscriminately expand the list of approved outputs to any type of DTCP or HDCP output. This proposal would unreasonably and recklessly discard the existing agreement between content owners, the cable industry and CEA reflected in DFAST for the careful and precise selection of approved digital outputs. If outputs on retail devices do not guarantee at least the same level of security provided by the operator’s own devices, a new “digital hole” would be opened that would undo conditional access, copy control, and other tools that cable operators need to convince content owners to make available their high-value content on cable without having to fear widespread unauthorized redistribution and copying of such programming. Accordingly, in DFAST, the parties agreed to approve only very specifically identified outputs, including a 1394 connection protected by DTCP and either a Digital Visual Interface (DVI) or a High Definition Multimedia Interface (HDMI) protected by High-bandwidth Digital Content Protection (HDCP). Each particular output had specific characteristics which allowed the terms of approval to be crafted with appropriate conditions in specifications, tests, or licenses. CableLabs has also approved DTCP-IP with specific amendments to the DTCP-IP licensing regime on terms studios approved as respecting their rights as content providers and the rights of cable operators as distributors. CableLabs is currently in the process of negotiating new language for DFAST and CHILA. That approval came as the result of thorough negotiations in which the proponents of DTCP-IP ultimately agreed to important changes that enabled major motion picture studios to agree to its approval. Studios not only produce major theatrical motion pictures run on broadcast and cable channels and offered via cable system video-on-demand services, but also produce many, if not most, of the major television series carried by cable channels. That experience demonstrates the error of CEA’s proposal here: even though DTCP over 1394 had previously been approved, that does not mean that other types of DTCP outputs should automatically be deemed approved as

well without any consideration of whether additional protection measures are necessary. CEA's unsupported proposal to sweepingly approve all types of DTCP and HDCP therefore cannot be approved.

CEA also proposes in Section 2.4.5(c) to allow a CE-controlled, non-standards setting organization (DLNA) to unilaterally approve any new content protection technology or digital output which could be used to ingest and redistribute all cable programming without approval from any content provider or any cable operator. CEA's scheme for "output" approval amounts to one-stop shopping for cable programming, free of cost, and free of restriction. Content owners have specifically opposed such a mechanism for approval of digital outputs. *See* MPAA comments at 20 ("DLNA simply does not provide content owners with a fair opportunity to participate in such decisions and thus should not be considered as an appropriate forum for approving digital outputs in two-way devices. In contrast to DLNA, the CableLabs approval process for digital outputs and secure recording technologies has provided both content providers and technology proponents with the chance to play a substantive role in the approval process. CableLabs therefore should oversee any standard approval process endorsed by the Commission for bidirectional equipment, and the FCC should not mandate the approval or use of any other content protection technologies or interfaces.").

Temporary Storage of Copy Never Content, CHILA Compliance Rules § 3.4.1

The CHILA agreement recognizes that limited temporary storage of Copy Never content should be permissible so that viewers are able to pause or view instant replays of such content. However, to avoid misuse, the license provides that such content must be "securely bound to the Licensed Product doing the recording so that it is not removable therefrom and is not itself subject to further temporary or other recording within the Licensed Product before it is rendered unusable." CEA proposes to delete this condition, which could allow circumvention of protections for Copy Never which would typically be associated with the highest value content. CEA also proposes to change CHILA by setting a mandatory minimum period of 90 minutes for a maximum storage requirement, rather than permit, as CHILA, a more flexible range of options that may facilitate new business models.

Storage of Controlled Content, CHILA Compliance Rules § 3.6

Without explanation, CEA proposes to delete the following provision that places requirements on the storage of Controlled Content for the purpose of assuring content protection: "A Unidirectional Digital Cable Product may use a user accessible digital interface to store Controlled Content on a storage device, if: (a) the Controlled Content is encrypted across the interface, and in storage, with an encryption algorithm that provides no less security than 128-bit Advanced Encryption Standard ("AES") or 112-bit Triple DES Encryption Algorithm ("3DES"); (b) the Controlled Content is uniquely cryptographically associated with the original UDCP connected to the storage device, such that Controlled Content is unusable to any other product or device; (c) the interface and storage device, or the system architecture, provides protection from a 'disk cloning attack'; (d) no key information is stored on the storage device unless encrypted with security no less than AES (128 bit) or 3DES (112 bit); and (e) the move, storage and copying of Controlled Content otherwise meets the criteria set forth in the Robustness Rules and

the Compliance Rules.” (footnote omitted). CableLabs established these provisions in response to CE requests to allow for storage of such content. CEA does not provide any explanation why it would remove these objective criteria.

Traces, CHILA Robustness Rules § 1.2

CEA has removed robustness requirements that devices not include software equivalents of specific traces that can be cut, weakening the resistance of such devices to hacking.

Security of Core Encryption Implementation, CHILA Robustness Rules § 3(e)

For devices with access to high value content, the robustness rules specify that the core encryption implementation shall comply with the “Level 2” requirements of the United States Federal Information Processing Standards (see FIPS PUB 140-2 “Security Requirements for Cryptographic Modules,” May 25, 2001). CE removes this, weakening the security of the device and network.

Exhibit D-3

Critique of CEA's Proposed Changes to the OpenCable Implementer License

The existing OpenCable Implementer License Agreement was commercially negotiated and has been widely accepted by many of the world's leading television manufacturers, including Samsung, LG and Panasonic. *See* Comments of NCTA at 22. Significant input was considered from MPAA and content suppliers, consumer electronics and IT companies, software developers, chip manufacturers, and cable.⁸⁵ Its terms have been negotiated in the marketplace, as recommended by MPAA. Samsung and LG have had their OpenCable DTVs tested and certified under these licenses, and Panasonic expects to release its first OpenCable two-way devices next year. Despite the commercial success of the existing license, CEA nonetheless has proposed substantial changes, which are critiqued below.

In many instances, CEA proposes to change the licenses by eliminating protections that were specifically found to be appropriate for IDCPs and the two-way content they are responsible for securing, reducing them to the level of the one-way DFAST license. If the terms of the DFAST license had been sufficient to protect the higher-value content and services at issue with two-way devices, a license limited to one-way devices never would have been necessary in the first place. It is precisely because of the greater need for protection for high-value content and services that both DFAST and CEA's proposed changes to OpenCable Implementer License Agreement are inadequate and would only hurt consumers by impairing cable operators' ability to obtain the premium content consumers desire.

The OpenCable Implementer License Agreement is available at http://www.opencable.com/downloads/OCAP_Agreement.pdf.

Host 2.0 Digital Certificate Agreement

For security purposes, the existing license requires participants to utilize digital certificates in connection with OpenCable devices. CableLabs provides the necessary licenses for these certificates in the CableLabs Host 2.0 Digital Certificate Agreement. CEA deleted all references to certificates in its proposed "O-ILA agreement." These certificates are needed, among other reasons, to enable cable to respond to problems or compromises common to particular models of DTVs. CEA's proposed elimination of certificates would severely handicap the cable industry and its content providers from identifying compromised devices, and is therefore unacceptable for two-way devices with high value content.

⁸⁵ To date, the following companies have signed the OCAP Implementers License Agreement. Acanetv, Advanced Digital Broadcast (ADB), Alticast Corp., Broadcom, Digeo, DigiSoft.tv, emuse, Engequence, Funai, Intel, Motorola, IDway, Korea Digital Cable Laboratories (KLABS), LG Electronics, Nexol Telecom, OSMOSYS, Pace, Panasonic, Samsung, Scientific-Atlanta, Softel, Tata Elxsi, Texas Instruments, Toshiba, TTA (Telecommunications Technology Association), Video Without Boundaries, Vidiom, VividLogic, Zentek Technology. In addition, MPAA supports OpenCable, *see* MPAA Comments at 24.

Compliance, OpenCable Implementer Agreement § 2.1

The existing license, in Section 2.1 and each annex, conditions grant of the right to use the OpenCable technology on “Licensee’s compliance with this Agreement.” CEA proposes to eliminate that language and replace it with a statement that the license right is only “subject to” the terms of the agreement. It is entirely reasonable for CableLabs to require that the licensee comply with the terms of the license as a condition of using the technology. CEA should not be permitted to obtain a license for the purpose of using OpenCable technology to build non-compliant devices that would jeopardize the security of cable services and confuse consumers.

CEA Seeks the “Flexibility” to Jeopardize Security, Facilitate Theft of Service, Harm Cable Networks, and Impede Content Protection and the Delivery of Cable Services, OpenCable Implementer Agreement § 2.7

Section 2.7 of the existing license, in conjunction with Section 3.1(c), permits a licensee to develop additional features or functionalities not specified in the OCAP Specifications so long as such features do not disrupt, impede or impair the delivery of services to any cable customer, cause physical harm to the cable network or the CableCARD, facilitate theft of service, jeopardize the security of any services offered over the cable system, or interfere with or disable the ability of a Cable Operator to communicate with or disable a CableCARD or to disable services being transmitted through a CableCARD. CEA sweepingly proposes to delete the entirety of conditions on flexible implementations (by deleting the cross-reference in § 2.7 to § 3.1(c)), allowing a licensee to include features that defeat any or all of these critical assurances. It would be unlawful for the Commission to force CableLabs to approve products that jeopardize the security of cable services and impede the rights of cable operators to prevent theft of service. *See* 47 U.S.C. § 549(b) wherein Congress specifically directed the FCC not to jeopardize the security of programming and services offered over cable systems or impede the rights of cable operators to prevent theft of service. In addition, it would be contrary to the public interest to enable CE manufacturers to fool consumers with devices labeled “cable-ready” that do not deliver cable services, or that physically harm the cable network that consumers share, or that undermines content protection that in turn undermines the ability of cable operators to obtain and deliver the high-value content that consumers desire.

CEA’s Refusal to Commit Not to Cause Physical Harm to the Cable Network, Facilitate Theft of Service, or Impair or Jeopardize the Security Cable Services (Representations and Warranties, OpenCable Implementer Agreement § 3.1

It is essential to the security of cable services that IDCPs comply with the applicable specifications and requirements such that the IDCP will properly display all cable applications properly and will not disrupt, impede or impair the delivery of services to any cable customer, cause physical harm to the cable network or the CableCARD, facilitate theft of service, jeopardize the security of any services offered over the cable system, or interfere with or disable the ability of a Cable Operator to communicate with or disable a CableCARD or to disable services being transmitted through a CableCARD. Section 3.1 of the existing license therefore reasonably requires Licensees to represent and warrant that their IDCPs will comply with these requirements. CEA’s proposal eliminates every one of these requirements and fails to offer any substantive warranty to protect content from unauthorized hacking or redistribution, or protect

the security of cable services, or to guarantee that consumers will be able to access the cable services and applications that they have paid for.

The cable network is a shared network. Failure by one errant CE device can lead to severe security breaches and disruption of services to other consumers on the shared network. This would lead to complaints by consumers to cable, CE, and the FCC. There is currently no requirement that CE manufacturers make or sell devices that are “digital cable ready;” it is entirely their option. But, if they choose to make their devices digital-cable ready, they need to step up to these common commercial representations and warranties.

1. The Commission should not and cannot rely on Section 629 to require cable operators to support devices that CEA refuses to promise will deliver intact cable services. Section 629 only tasks the Commission to assure the commercial availability of “equipment used by consumers to access multichannel video programming and other services offered over multichannel video programming systems.” But CEA is apparently hoping to offer equipment that displays some remix or rebranded version of cable services, and for that purpose is asking the Commission to force cable operators to disaggregate their existing services and create new support and services for third parties’ retail devices. The Commission has already rejected such conscription of cable operators as outside the scope of Section 629: “The Commission has not found that the right to attach consumer electronics equipment to a cable system can be expanded to include the obligation by cable operators to carry any service that is used by such equipment, nor is the legislative history supportive of such a requirement. ... Section 76.1202 does not require carriage of services outside of those chosen by the MVPD in order to assure retail availability of navigation devices.” *See* NCTA Comments at 67-70 (citing *Gemstar Int’l Group, Ltd.*, 16 FCC Rcd at 21542, ¶ 31). Section 629 does not authorize the Commission to turn cable operators into common carriers that are forced to offer wholesale access to their network so that third parties can rip, burn or mix cable content into new services branded as their own.

Indemnification, CEA “O-ILA” § 5.1

CEA requests that CableLabs be required to indemnify licensees for certain liability arising from implementation of the OpenCable specifications: “In the event that a court of competent jurisdiction enters a final judgment of willful infringement against CableLabs based on direct infringement or inducement of infringement, CableLabs shall indemnify and hold harmless Licensee from any increased damages imposed under 35 U.S.C. § 284 or 17 U.S.C. § 504(c)(2) where the finding of infringement against Licensee is based on the requirements of the OCAP Specification or this Agreement.” Such indemnification is inappropriate in this case. CableLabs is a non-profit company that is providing the OpenCable technology to licensees at minimal licensing fees and without the payment of any royalties to CableLabs, for use in digital televisions that licensees will distribute commercially at a profit of millions or even billions of dollars. In the existing license, CableLabs has already agreed to represent and warrant that it is “not aware of any notice or claim, threatened or pending, that the use of the OCAP Licensed Materials in accordance with the terms of the Agreement infringes any third party’s Intellectual Property rights, except as identified by CableLabs to Licensee.” § 3.2(b). This provision is a far more reasonable balance between the parties than CEA’s indemnification proposal given the commercial risks and opportunities available to the respective parties under the existing agreement. The license would need to be priced considerably higher if it were to cover a broader indemnification.

Cure Period for Breaches, OCAP §§ 6.3, 9

The existing license provides that a thirty day opportunity for cure must be provided by CableLabs before it can terminate for a material breach, and by Third Party Beneficiaries before it can file a claim against a licensee for a breach. CEA proposes to double this cure period to 60 days. Such a change would be unreasonable because CableLabs needs to be able to quickly respond in the event that a breach has resulted, for example, in the mass-dissemination of non-compliant devices that jeopardize the security of cable services. Each day that passes without relief in such situations would cause enormous harm to cable operators and programmers, with the potential to far exceed the limited monetary damages that they are permitted to seek under the liability cap. More importantly, cable consumers would be frustrated, yet again, when they find that their devices need to be disconnected, recalled, retrofitted, or otherwise may not work properly when connected to the cable network. CEA's proposal is not necessary to address situations in which additional time is needed to cure a breach that is not threatening the security of cable services; the existing license already has terms that allow the cure period to be extended in such situations. The real impact of CEA's proposal would instead be to unreasonably prolong the minimum period during which CableLabs would be required to wait even in the case of bad faith, willful breaches. CEA's proposal therefore would not serve any legitimate purpose.

As noted above, the existing license provides that CableLabs may extend the cure period for a breach when the breach does not subject cable content to "unreasonable risk of unauthorized access, copying, or distribution." Inexplicably, CEA proposes to narrow this term by changing "cable content" to "Controlled Content." Cable operators have a significant interest in assuring the availability, presentation and security of all of their content and services, not only content that is subject to content protection.

Assignment, § 11.3

In the existing license, the licensee must obtain approval to assign its license, but approval may not be unreasonably withheld. CEA proposes to change the license by eliminating the approval requirement for assignments to affiliates. CEA does not explain what would justify this change to what has been commercially accepted and functional, or why such a change would be appropriate given the more careful assignment clauses in other content protection licenses (such as DTCP) to which its members have also agreed.

Injunctive Relief, § 11.10

A material breach that resulted, for example, in the mass-dissemination of non-compliant devices or that enabled hackers to defeat content protection for cable's highest-value two-way services or engage in theft of cable services would likely cause cable operators and programmers damages far in excess of the \$5 million liability cap established in the license per instance of breach. In the commercial negotiation of the existing license, CableLabs agreed to this cap only because of the inclusion of a strong provision for immediate injunctive relief, in which the parties agreed in advance that CableLabs would be "entitled to entry of" an injunction. This provision was designed to speed CableLabs' ability as licensing authority to obtain an injunction without

having to overcome opposition from arguments by licensees that CableLabs would not suffer irreparable harm without an injunction. CEA proposes to delete this provision and replace it with a hollow term that would allow CableLabs to “seek” an injunction, something that CableLabs would have the right to do in any event. Such a change would be unreasonable, given the liability caps in place, because it would prolong the period in which cable operators and cable content suppliers would suffer damages from breaches that jeopardize the security of cable services or that interfere with content protection or the delivery of cable services. Each day that passes without relief in such situations would cause enormous harm to cable operators and programmers, with the potential to far exceed the limited monetary damages that they are permitted to seek under the liability cap.

Interference with the Rights of Cable Operators to Protect System Security and Prevent Theft of Service, OCAP § 11.11

The existing license provides that “nothing in this Agreement shall prevent a Cable Operator from denying services to any individual CableCARD ...” Such action may be necessary for a cable operator to prevent theft of service, to disconnect subscribers, to take action in the event of a non-compliant device, or to take other lawful action. Notwithstanding the fact that neither a licensee, the Commission nor CableLabs may prevent cable operators from protecting their private networks in this manner, the existing license requires CableLabs to notify a licensee in such cases and to “facilitate discussions between Licensee and the Cable Operator to alleviate the circumstances giving rise to the Cable Operator’s desire to deny such service.” CE proposes to delete this entire section.

Elimination of References to Certification and Certified Devices

The one-way MOU specifically provided that IDCs would be subject to a more rigorous testing environment than UDCs. Sony, Mitsubishi, Philips, Pioneer, Hitachi, JVC, Panasonic/Matsushita, Samsung, Sharp, Thomson, Toshiba, Zenith, and the rest of CEA’s Video Board were parties to the agreement and submitted it to the Commission as part of a comprehensive agreement. *Navigation Devices FNPRM*, 18 FCC Rcd at 548 (“Because of the complexity of this type of product, CE Manufacturers agree to a higher level of compliance, and of interoperability testing, leading to self-certification; CE Manufacturers will participate in prototype testing and development of interoperability test suites; further details subject to continued discussion.”) CEA has nonetheless eliminated comprehensive certification testing from the license for IDCs and proposed the exact same testing / verification scheme used for the less complex UDCs (which have had *significant* conformance problems in the marketplace).

The existing commercial licenses adhere to the terms of the MOU for two-way products and offer a path to self certification through demonstrated compliant performance. (“CableLabs agrees that it will allow in the future for self-Certification of products by its licensees who have demonstrated through the Certification process that they are consistently capable of building products that are Certified in the first submission for Certification under this Agreement”).