

**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

PP Docket No. 00-67

Compatibility Between Cable Systems and
Consumer Electronics Equipment

**PETITION FOR RECONSIDERATION OR CLARIFICATION OF
THE NATIONAL CABLE & TELECOMMUNICATIONS ASSOCIATION**

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SUMMARY

NCTA applauds the Commission for adopting rules in this proceeding to implement the landmark agreement on cable-consumer electronics compatibility issues reached by cable operators and television manufacturers in December, 2002. The FCC's actions and the agreements reflected in the Parties' Memorandum of Understanding ("MOU") constitute a significant step forward in the digital transition. Together with the MOU and other arrangements agreed upon by the Parties, the FCC's new rules allow for DTVs and other unidirectional Digital Cable Products ("UDCPs") to have set-top box functionality incorporated in them and to resolve a myriad of technology, delivery, compatibility, testing and operational issues so that any UDCP could receive and display one-way services directly from cable systems without the need for a separate set-top box. NCTA is filing this petition for limited reconsideration or clarification to address some narrow technical issues that arise from certain language used in the rules that varied from the language proposed by the Parties to the Commission.

The first area covers some fine points of the testing and certification process for the first DTV (or other digital cable ready device). The new POD-Host interface to be used in retail "digital cable ready" products enables the hand off of scrambled cable programming to consumer-owned devices that need to be trusted to obey the access and copy control rules associated with the programming as they display, record or re-output the programming. Now that set-top boxes and other "Host" devices can be manufactured by any vendor, testing and certification are essential to preserve security. Programmers make it clear to cable operators that they will place their most desirable product on platforms that have these security tools working if devices that access cable programming do not.

The importance of making this system work cannot be overstated. CE manufacturers have never before built integrated DTVs with digital cable set-top box functionality built inside, and they have never been responsible for protecting the copy control signals and business models that make the cable industry work. For manufacturers, building UDCPs is an incremental business. For cable operators, getting this right is essential to cable operators' entire, core business. It is also essential that UDCPs be tested and verified to tune and display the services provided by the cable operator and to verify that they do not disrupt, impede or impair delivery of services to cable subscribers. The last thing that the digital transition needs is a new generation of "cable ready" products that cannot receive the suite of services offered and expected via cable. That would be unbelievably confusing to consumers and impose an overwhelming competitive disadvantage on cable, as compared to DBS, which specifies every functionality that must be placed in a DBS box. The rules should be clarified, consistent with the agreement among cable operators and consumer electronics manufacturers, so that a manufacturer's first DTV must be tested by CableLabs or an appropriately qualified independent testing lab, that the products must pass the joint test suite posted at the UDCP website, and that any laboratory permitted to test UDCPs under the FCC rules have appropriate qualifications comparable to those of CableLabs to ensure objective and competent testing of UDCPs.

The second area of clarification concerns some nuances of the rules for carrying program and system information protocol ("PSIP") data. By incorporating only parts of the entire February 2000 NCTA-CEA PSIP agreement, some subtle changes of language from that Agreement occurred that may be susceptible to a misunderstanding. NCTA suggests slight changes of wording to clarify the rules' intention and avoid misunderstanding by any other parties not familiar with the intent of the February 2000 agreement.

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The National Cable & Telecommunications Association (“NCTA”), pursuant to Section 1.429 of the Commission’s Rules, 47 C.F.R. § 1.429, hereby petitions for reconsideration or clarification of the Second Report and Order in the above-captioned proceeding adopted by the Commission on September 10, 2003 (the “*Second R&O*”).¹

NCTA applauds the Commission for adopting rules in this proceeding to implement the agreement reached by cable operators and television manufacturers in December, 2002. The FCC’s actions and the agreements reflected in the Parties’ Memorandum of Understanding (“MOU”) constitute a significant step forward in the digital transition. NCTA is filing this petition for limited reconsideration or clarification to address some narrow technical issues that

¹ The *Second R&O* was released on October 9, 2003, the summary published in the Federal Register on November 28, 2003, and the effective date set as December 29, 2003. 68 Fed. Reg. 66728 (2003). See also *Order DA 03-4085*, rel. Dec. 23, 2003.

arise from certain language used in the rules that departed from the language proposed to the Commission by the Parties.

NCTA is the principal trade association of the cable television industry, representing operators serving more than 90 percent of the nation's cable customers. These companies also provide high-speed access to the Internet and other services. NCTA's members also include more than 200 cable program networks as well as companies that provide equipment and services to the industry. NCTA and its members also provide support for Cable Television Laboratories, Inc. ("CableLabs"), a nonprofit research and development consortium that has developed new specification-setting projects such as OpenCable, PacketCable, Cable Home and CableModem/DOCSIS that have allowed for the widespread deployment of retail digital set-top boxes, cable modems, and other interoperable equipment bringing new digital broadband and video services to the American consumer.

I. INTRODUCTION AND BACKGROUND

The first proceeding in this docket was commenced pursuant to the 1996 amendments to the Communications Act to consider adopting regulations that would ensure commercial availability of equipment used to access programming and services provided by multichannel video programming distributors. Subsequently, in response to Commission and Congressional encouragement, the cable and consumer equipment industries negotiated a far ranging agreement (the "Memorandum of Understanding" or "MOU") on cable and consumer electronics compatibility issues. The MOU focused on unidirectional Digital Televisions and other digital cable products ("UDCPs") and set interface requirements assuring security and copy controls, provided for testing and certification of equipment, and allowed for the development of new business models going forward.

For cable operators, the comprehensive MOU between the cable and consumer electronics industries was another major, voluntary step toward promoting the digital transition. Among other things, the cable industry—through CableLabs—had created interchangeable modular security components (the Point Of Deployment module or “POD” that is now known as CableCARD™) to promote competition and retail availability of set-top boxes. The cable industry was the first industry to endorse Chairman Powell’s plan to spur the digital transition. To jump start retail availability of navigation devices, cable then offered to place digital set-top boxes with integrated security into the retail market. At all stages, the cable industry met or exceeded expectations and made it possible for an early and comprehensive deployment of digital compatible equipment that would trigger the widespread release of digital programming.

The rules proposed by the MOU, largely adopted in the *Second R&O*, went much further than promoting the retail availability of portable set-top boxes, which was the primary focus of Section 629.² Together with the MOU and other arrangements agreed upon by the parties, the new rules allow for DTVs and other UDCPs to have set-top box functionality incorporated in them and to resolve a myriad of technology, delivery, compatibility, testing and operational issues so that any UDCP could receive and display one-way services directly from cable systems without the need for a separate set-top box.

² Section 629 instructed the Commission to adopt regulations to assure the commercial availability of navigation devices such as set-top boxes. 47 U.S.C. § 549. “The scope of the regulations are [sic] narrowed to include *only* equipment used to access services provided by multichannel video programming distributors.” H.R. Conf. Rep. No. 458, 104th Cong., 2nd Sess., at 181 (1996)(emphasis supplied). “One purpose of this section is to help ensure that consumers are not forced to purchase or lease a specific, proprietary converter box, interactive device or other equipment from the cable system or network operator.” S. Conf. Rep. No. 230, 104th Cong., 2nd Sess., at 181 (1996). At the time of section 629’s adoption, the navigation devices provided by cable operators were set-top boxes. The Commission then determined that retail availability of navigation devices would be fostered by separating out security from the other functions of set-top boxes. “The record with respect to equipment used with cable services convinces us that the separation of security will significantly enhance the commercial availability of equipment.” *Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, Report and Order 13 FCC Rcd 14775, ¶ 61 (1998)(“1998 Report”).

Cable fully supports retail availability. Operators want and need a retail presence to compete against DBS providers that have flooded retail outlets with their own proprietary equipment. Cable operators are service providers, who want innovation in products that will encourage customers to subscribe to cable services. Through the MOU, cable operators have created arrangements to encourage further competition among equipment manufacturers, in order to enhance attractiveness of cable service with new and additional features in terminal devices.

But the MOU was also delicately structured to protect conditional access; to preserve the economic structure for the delivery of cable services; and to assure that cable has the technological tools to provide even more attractive services to customers. Section 629 made signal security prominent and prohibited the Commission from adopting regulations that would jeopardize security of programming and services.³ In two key areas, the FCC's rules vary (perhaps inadvertently) from the careful balance agreed upon by the cable industry and consumer electronics manufacturers precisely to maintain security and foster widespread consumer-friendly deployment of digital programming services through UDCPs.

The first area covers some fine points of the testing and certification process for the first DTV (or other digital cable ready device). These subtle variances have the unintended effects of altering the careful balance struck by the parties, undermining the security of the cable network, and thereby jeopardizing the very innovations with which the cable industry hopes to attract desirable programming from program suppliers for enjoyment by cable customers. The second concerns some nuances of the rules for carrying program and system information protocol ("PSIP") data. The potential misunderstandings created by these changes may and should be remedied.

³ 47 U.S.C. 549(b); H.R. Conf. Rep. No. 458, 104th Cong., 2nd Sess., at 181 (1996); H.R. Rep. No. 204, 104th Cong., 2nd Sess., at 112.

II. Testing and Certification

A. Background on Testing and Certification

Today, cable operators deliver secured programming from cable headends to cable customers by using conditional access technology at the headend linked to companion technology in the set-top boxes. The technology is proprietary to Scientific-Atlanta, Motorola, and NDS. Utilizing this conditional access technology allows cable operators to deploy set-top boxes to their subscribers and authorize or deauthorize services. It allows customers to buy discrete premium channels, to order pay-per-view events, to subscribe to expanded tiers, to buy only basic, or to buy basic plus premium services without having to “buy-through” the tier. It can allow changes without a customer waiting at home for an installer, and without a cable operator needing to dispatch a truck, by delivering secure codes to the set-top boxes activating or deactivating specific program services. Without the secure handling of such authorization codes, the operator cannot offer service as it has come to be enjoyed, cannot be assured of payment, cannot have adequate protection against theft, and cannot assure program suppliers that the programming is being used only as contracted for in their affiliation agreements.

These set-top boxes were invented and deployed to maximize service availability and enable innovation, not to constrain it. The average life of a TV set exceeds 20 years. The average time between replacements of the primary set is eight years. Consumers simply do not replace their home television equipment as often as they do personal computers, or as often as CE makers and retailers might wish them to. But consumers do want innovative services—for example, the ability to receive 750 MHz of programming on an older analog cable-ready

television that only tunes to 350 MHz. The set-top box was needed to offer new services that outpaced constraints of tuners embedded in existing consumer equipment.

Conditional access has served as the tool to provide consumer choice. The Commission has repeatedly recognized that Section 629 is not a mandate to defeat conditional access, nor was it intended to convert the entire regulatory or economic structure for the delivery of cable service.⁴ Instead, it must be construed to allow cable the technological tools to continue to offer attractive service in competition with its competitors, and to recover the massive private investment it has made in a highly competitive market.⁵

Now that set-top boxes and other "Host" devices can be manufactured by any vendor, testing and certification are essential to preserve the security that has to date been insured by the relationship between cable operators and their traditional set-top box suppliers. That relationship has preserved the integrity of conditional access: among all conditional access systems, only those provided by Scientific-Atlanta and Motorola have not been compromised. The new POD-Host interface hands off programming to consumer-owned devices that need to be trusted to obey the access and copy control rules associated with the programming. It quite literally delivers the keys to the City: at the POD-Host interface, the programming received from the

⁴ See, e.g., *Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, Notice of Proposed Rulemaking, 12 FCC Rcd 5639, ¶¶ 13, 28 – 31 (1997) ("NPRM") ("The core requirement of Section 629 is that navigation equipment used in conjunction with multichannel video programming be commercially available through unaffiliated outlets"; "Section 629 requires that the rules we adopt 'not . . . jeopardize security'; 'If analog decoders were readily available for purchase, existing security methods would become completely ineffective'; 'Digital signal delivery methods, however, will increasingly be used by MVPDs to transmit programming to consumers and facilitate more sophisticated access control systems'; 'Failure of access control or security systems will both interfere with incentives to produce programming for the market and to increase the cost of service to those who do subscribe.'")

⁵ *Second R&O*, ¶ 43 (recognizing the "need for competitive parity among MVPDs."); ¶ 55 ("Adoption of the encoding rules will . . . ensure the availability of high value content to consumers in a protected digital environment."). DBS, cable's major competitor, now has more than 20 million subscribers. SkyResearch, *Total DTH Counts March 2002 to September 2003*, p.3 (SkyTrends vol. 10, no. 12, December 2003). See also http://www.skyreport.com/dth_counts.cfm (visited December 23, 2003)(DTH counts through March 2003).

headend keyed to the specific conditional access technology is decrypted, re-encrypted with the DFAST protection, and passed to the Host (along with the copy control bits) for display, possible recording or storage.

The CableCARD must not unscramble programming for a subscriber who does not buy that service. The Host must be trusted to obey the copy control rules associated with the programming and to not change or delete the codes. The Host must assure that "copy once" programming is only copied one generation. The Host must assure that there are no insecure outputs, or insecure points for hackers to attack, that would defeat these security and copy protection rules. These security rules are protected by algorithms, security certificates, and key exchanges, all of which would be compromised if the Host has any weakness that could be exploited allowing the security keys to be detected, copied or used and cloned for pirate products.

Protecting each point of hardware and software vulnerability in a Host is the art of the security specialist, and it is not easy. Until the POD-Host interface, the precise security techniques used in each headend could vary, and could be selectively upgraded as needed. The generally accepted view in prior proceedings considering encryption technologies was that service theft was lessened when security techniques were combined, not separated, as the combination would require a greater degree of sophistication to hack or exploit.⁶

⁶ *In re Inquiry into the Scrambling of Satellite Television Signals and Access to those Signals by Owners of Home Satellite Dishes*, Second Report, 3 FCC Rcd 1202, ¶¶ 24-26 (1988) ("Second Scrambling Report"). The Commission heard much the same in this proceeding, but to implement Section 629 determined to require that security and conditional access be separated. *Second R&O*, at ¶¶ 59-61. Given that this process will require that encrypted signals be sent over an interface, there is built-in a higher risk of hacking or cloning. *Second Scrambling Report* at ¶ 26 (When module design requires that information relating to the secure processes be transmitted electronically to separate chips within the module pirates may extract information regarding the secure processes and create clones). The need to protect services and copyright controls means that the rules must allow for a higher level of vigilance in the testing and certification as the failure of any product to properly pass through encrypted programming or one

The POD-Host interface, and the copy control signals that flow over it, present for the first time in cable's history a huge, non-diversified, and tempting target for hackers. Non-diverse security technologies are notoriously compromised. The prime example of the impact of theft in the deployment of services and obtaining programming for distribution is the failure of the VideoCipher series of security controls for the C-band market. Piracy was "the single most important problem" facing the nascent satellite industry.⁷ Other large, non-diverse security controls have been compromised.⁸ Even DBS has suffered piracy with its integrated smart card boxes, with reports that DirecTV was broken "in short order" and is the "favorite" of hackers and even Dish network, which "held out far longer . . . has sprung leaks."⁹

B. Cable and CE Both Recognized the Importance of Thorough Testing

Hackers are waiting for the cable industry and the retail market to deploy non-diversified cable security. Digital boxes, filters, and web sites are standing by.¹⁰ It only takes the lowest common denominator manufacturer to break the regime. As the Commission recognized, copy protection tools must work in order to assure access to programming. "Service theft is a serious matter. Failure of the access control or security systems will both interfere with incentives to

that allows encryption keys to be diverted for hacking or cloning, would promote theft and ultimately drive programming providers out of this market.

⁷ *Second Scrambling Report* at ¶ 26. Indeed the failure of the VideoCipher II access control system for home satellite C-Band dishes due to theft and breach of security has been repeatedly recognized by the Commission, even in this docket. "The difficulties that exist in the development of a market for the distribution of television programming in an environment in which compensation mechanisms do not exist or have been defeated have been well documented in the history of the C band satellite home video programming distribution market." *NPRM* at ¶ 31. See also *1998 Report* at ¶ 59 ("The Commission itself has studied security failures in the C-Band satellite market and noted the importance of security for a market to develop.").

⁸ Microsoft's Windows operating program has been hacked repeatedly with regular software patch downloads required. *Fixing Flaws, Microsoft Invites Attack*, New York Times, Sept. 29, 2003 (Business/Financial Desk). Microsoft had issued 45 Security Bulletins listing security updates for multiple aspects of Windows and its related programs from January – November 11, 2003. http://www.microsoft.com/security/security_bulletins/.

⁹ PIRATES!, *The Bridge*, SkyReport, April 2003, Vol. 2, No.4, p.1.

¹⁰ Unsolicited e-mails advertising digital cable decoders, filters or plans promising free cable service are widely disseminated.

produce programming for the market and to increase the cost of service to those who do subscribe.”¹¹ Programmers repeatedly and recently have made it clear to cable operators that they will place their most desirable product on platforms that have these tools working if cable does not assure security. The importance of making this work cannot be overstated: for manufacturers, building UDCPs is an incremental business. For cable operators, getting this right is essential to cable operators’ entire, core business.

This is why Congress specifically instructed the FCC to assure that its rules did not compromise cable security. “Cable and other telecommunications operators have a valid interest, which the Commission should continue to protect, in system or signal security and in preventing theft of service and, therefore, the Commission may not prescribe regulations which would jeopardize signal security....”¹² CE manufacturers have never before built integrated DTVs with digital cable set-top box functionality built inside, and they have never been responsible for protecting the copy control signals and business models that make the cable industry work. No one can be unconcerned about the consequences of error, whether intentional or negligent.

This is the first reason why the cable and CE industries agreed on a regime of testing and certification. The regime would provide a checkpoint for manufacturers to demonstrate that they knew how to build DTVs that did not facilitate theft of service, did not interfere with reasonable actions taken by cable operators to prevent theft of service, did not jeopardize security, did not interfere with communications with the CableCARD, did not prevent cable operators from

¹¹ *Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, Notice of Proposed Rulemaking, 12 FCC Rcd 5639, ¶ 31 (1997)

¹² H.R. Conf. Rep. No. 458, 104th Cong., 2nd Sess., at 181 (1996).

deauthorizing services (for example, when they have not been paid for), and did not impede or impair control of content protection.¹³

But there is another critical element of testing that the cable and CE industries agreed upon. The rules as proposed require that retail unidirectional digital cable products be tested and verified to tune and display the services provided by the cable operator and to verify that they do not disrupt, impede or impair delivery of services to cable subscribers. The last thing that the cable industry wants is to see another generation of CE products emerge that cannot receive the suite of services offered and expected to be received via cable. That would simply recreate the world that led to the set-top box in the first place—a world of long-lived, embedded CE devices that needed supplementary equipment to overcome their inability to receive innovative services.

In today's world, the proliferation of "cable ready" devices that could not tune all cable services, or that interfered with the delivery of services as they are intended to be rendered, would be unbelievably confusing to consumers who had purchased such products. It would also impose an overwhelming competitive disadvantage on cable, as compared to its principal competitor. DBS convinced the FCC in 1998 to exempt it from the POD rules,¹⁴ so every DBS set-top box is manufactured (by CE manufacturers) under the direct control of DBS, which specifies every functionality that must be placed in the box and subjects the boxes to rigorous

¹³ DFAST Agreement ¶ 2.2, available at *Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices; Compatibility Between Cable Systems and Consumer Electronics Equipment*, Further Notice of Proposed Rulemaking, 18 FCC Rcd 518, 576 (1997) ("FNPRM"); Joint Test Suite, Conformance Checklist: PICS Proforma at ¶ 3, located at: <http://www.cablelabs.com/udcp/downloads/PICS-I01-030903.pdf>. All of these elements of the proposed testing regime are critical to the MOU itself. "This MOU constitutes a system that necessarily relies on all its parts to provide consumers with solutions to cable and CE issues affecting digital television. Should any part of this MOU not be implemented as proposed, or if additional obligations are imposed on a Party, each of the Parties reserves its right to withdraw support for any implementation." MOU ¶ 1.3, FNPRM, 18 FCC Rcd at 539. This carefully constructed testing and certification system must be preserved.

¹⁴ 1998 Report, 13 FCC Rcd 14775, at ¶ 64 ("Requiring DBS providers to separate security would serve a limited purpose and disrupt technical and investment structures that arose in a competitive environment.").

acceptance testing. Thus, DBS does not face concerns over retail devices failing to deliver DBS services as intended. Cable operators need some mechanism to assure that cable services could be delivered as intended to customers who bought their set-top box functionality inside retail DTVs, rather than leasing set-top boxes.¹⁵ Otherwise, the cable industry could neither compete with DBS nor provide the assurance to program providers that it was capable of delivering programming in the manner needed to attract that programming to the cable platform. The MOU recognized this necessity.

C. The Rules Should Require that the Manufacturer's First DTV be Tested

The rules as proposed to the Commission by the cable and consumer electronics industries required that a manufacturer's first DTV must be tested by a properly credentialed testing lab. It could not be self-certified, even if the manufacturer had previously submitted a non-TV product for certification.¹⁶ Unfortunately, as adopted, the rules blurred the distinction between TV and non-TV products. The current Rule language suggests that having a first "product" certified eliminates the need for the first DTV to be tested. This would mean that a manufacturer could first build a DVR (or other subcomponent device), and then self-certify its first DTV. In the MOU, the parties prohibited this result because DTVs are far more

¹⁵ Comparable service protections are permitted even under the CLEC-ILEC interconnection model. For example, the SBC Interconnection agreement forbids anything that "interferes with or impairs service over any facilities of [SBC], its affiliated companies or other connecting telecommunications carriers, prevents any carrier from using its Telecommunications Service, impairs the quality or the privacy of Telecommunications Service to other carriers or to either Party's End Users, causes hazards to either Party's personnel or the public, damage to either Party's or any connecting carrier's facilities or equipment, including any malfunction of ordering or billing systems or equipment." CLECs warrant that "CLEC's use of any [SBC] UNE, or of its own equipment or facilities in conjunction with any [SBC] network element, will not materially interfere with or impair service over any facilities of [SBC], its affiliated companies or its connected and concurring carriers involved in its services." Sections 35.2, 35.3 and 35.6, SBC 13-State Interconnection Agreement; Appendix UNE Section 2.10.5. Both available at the following addresses: https://clec.sbc.com/clec_documents/unrestr/interconnect/multi/Gen%20Terms%20and%20Cond.doc; and https://clec.sbc.com/clec_documents/unrestr/interconnect/multi/Unbundled%20Network%20Elements.doc

¹⁶ "Each CE manufacturer will bring a prototype of its first POD-enabled Unidirectional Digital Cable *Television* to CableLabs or to an appropriately qualified third-party test facility to execute the Test Suite." MOU ¶ 3.7, *available at FNPRM*, 18 FCC Rcd at 545 (emphasis added).

complicated devices, with many more points of vulnerability to hacking or to failure of service. Only DTVs incorporate all the applicable standards for a UDCP as it receives, decrypts, re-encrypts, tunes and displays (and optionally re-outputs) digital content, all while ensuring that the copy controls and programming signals pass through and are honored.¹⁷ Because the language in the MOU required that the first television be tested, and the success of the UDCP concept will depend on the DTV itself working as promised, the Commission should clarify its rules as suggested in Exhibit A attached hereto.

D. The Qualifications of a Testing Laboratory Must be Refined

There is a related testing issue which requires correction. As much as the parties seek to inspire innovation, the testing and certification of "plug and play" products is not one that may be satisfied in a garage. The need for interoperability and portability means that a testing facility needs to verify operations against all headends and their varying conditional access systems and with all CableCARDS. For example, a Host device needs to be tested for proper reception of emergency alert ("EAS") signals generated from the headend, and for proper response to headend firmware downloads to CableCARDS. The need for security means that a testing facility needs to verify proper operations with security certificates that pair between the CableCARD and the Host. Testing therefore requires specialized resources, including operating headends from Scientific-Atlanta, Motorola, and NDS that may be manually adjusted (e.g., to trigger EAS signals and perform firmware downloads); specialized test tools, such as the HPNx, which is a device used to simulate hacking and to test a product for its resistance to pairing with

¹⁷ For example, unless the first tested UDCP is a DTV, there will be no real test that the UDCP actually and clearly displays encrypted programming, EAS messages, PSIP information, and closed captions so there is no assured compliance with all of the relevant standards in the agreed-upon Joint Test Suite ("JTS"). If a product could later be introduced without first being tested to ensure that it complies, then the entire system for compatibility and ensuring consumer satisfaction (and appropriate copy control protections) could be defeated in a manner not contemplated by the MOU.

fraudulent security certificates; specialized training; and specialized knowledge of the specific Protocol Implementation Conformance Statements (“PICS”) and of the Acceptance Test Procedure (“ATP”) that prescribes how to use test equipment to prove compliance with those PICS.¹⁸ It also requires a level of objectivity and impartiality so that products submitted for testing will be judged on their merits, not on commercial relationships or pressures. In particular, the party performing testing should not be employed by, or affiliated with, manufacturers of products of the type being tested.¹⁹

Part of the cable and CE industries’ agreement was to require testing and certification of the first UDCP and the first DTV at CableLabs or an “appropriately qualified third-party test facility.” The Rules as adopted instead say that the first test may be done at any independent lab with personnel “knowledgeable” in the Joint Test Suite.²⁰ The rules contemplate that CableLabs will provide a testing facility (as the Parties intended) (*Second R&O* ¶ 39) but almost any third-party lab is invited to certify without qualification except for “knowledge” with respect to the

¹⁸ PICS is essentially a fixed-format questionnaire or checklist designed to show which capabilities and options have been implemented. The ATP together with the PICS constitute the mutually agreed-upon joint Test Suite (“JTS”) referred to in the proposed rules submitted by cable and CE for adoption by the Commission. Broberg, D, Markwalter, B., *Cable & CE Industry Cooperation on Unidirectional Digital Cable Receivers*, Technical Session Proceedings of the National Cable & Telecommunications Association, Washington, D.C., 52, 284-289 (2003). For example, the ATP specifies an equipment list and process for the Combined Distortions Test (“This test verifies the successful decompression and display of an MPEG-2 compressed video bitstream after demodulation, using 256QAM transmission in the presence of multiple combined channel impairments. The impairments consist of a –18dB ghost at 0.5uS, 36dB C/N and 16 uS bursts of noise at –12dBmV.”)

¹⁹ Such separation from manufacturers is one of the central criteria for the “independence” of testing laboratories under FCC standards. See, e.g. *1998 Biennial Regulatory Review - Amendment of Parts 2, 25, and 68 of the Commission's Rules to Further Streamline the Equipment Authorization Process for Radio Frequency Equipment, Modify the Equipment Authorization Process for Telephone Terminal Equipment, Implement Mutual Recognition Agreements and Begin Implementation of the Global Mobile Personal Communications by Satellite (GMPCS) Arrangements*, GEN Docket No. 98-68, Report and Order, 13 FCC Rcd 24687, 24695 (1998). “Guide 65 clearly requires that the certifying body be impartial. More specifically, clause 4.2 of Guide 65 requires that the certifying body ‘not supply or design products of the type it certifies,’ nor ‘provide any product or service which could compromise the confidentiality, objectivity or impartiality of the certification process and decisions.’” *Id.* at 24697. The Commission also expected that a manufacturer would not be used as a subcontractor “to test its own products or similar products made by a competing manufacturer.” *Id.*

²⁰ 47 C.F.R. § 15.123(c)(2).

items referenced in the Joint Test Suite. This is far too lenient a standard given the stakes.²¹

This is a new system and new technology. It is critical to the success of these products that they be tested and certified as completely as possible. First time failures in the field risk driving consumers away from “digital cable ready” devices, even if such failures are later remedied.

CableLabs was an obvious selection for testing and certification. It has the equipment,²² the resources and trained professionals;²³ and a detailed understanding of the Joint Test Suite which it jointly crafted with CEA.²⁴ Its objectivity is assured in multiple ways: certification testing is conducted in a secure laboratory, with the testing staff insulated from the vendors being tested. The results are reviewed by an independent verification panel, whose members must be different from personnel that perform the JTS testing. Panel members may not be employed by, or affiliated with, suppliers of products of the type being verified, and must sign and adhere to

²¹ In similar circumstances, owners of encryption technology argued previously that if there were a single scrambling standard and the number of manufacturers of encryption equipment increased substantially, “it would be ‘virtually impossible’ to develop and maintain a secure system.” *In re Inquiry into the Need for A Universal Encryption Standard for Satellite Cable programming*, Report, 5 FCC Rcd 2710, ¶ 46 (1990). General Instrument (one of the major manufacturers and licensors of conditional access technology) stressed the importance of limiting the number of persons with access to the control system and noted a scenario where a manufacturer pursuing a “cost reduction technique” would run the risk of implementing designs that were physically insecure and thus compromise security functions. *Id.* In that proceeding the Commission declined to adopt a single standard. Here there is a single standard, DFAST, a single set of copy control bits, and carefully negotiated rules for compliance and robustness, which if not tested and certified with the utmost accuracy and security, could lead to a compromise of the interface and failure of the digital transition. The stringent standards agreed to in the MOU must be acknowledged by any facility testing UDCPs.

²² CableLabs has the headend equipment allowing it to have end-to-end testing of all UDCP products in the technological environment in which they will be deployed. Under the MOU CableLabs is committed to helping CE manufacturers obtain headend equipment or to sharing this headend equipment with them so they may have access to these facilities. MOU ¶ 3.9.4, *available at FNPRM*, 18 FCC Rcd at 547.

²³ CableLabs was founded in 1988 as a non-profit research and development consortium. There are approximately 130 employees and consultants at CableLabs. Its chief executive officer is a research scientist who has worked at PBS, CBS, and ABC; who helped organize and establish the Advanced Television Systems Committee; who chaired the committee that eventually developed CCIR (now ITU-R) Recommendation 601, a world- wide television standard for digital signals; and currently serves as vice chairman of Study Group G9, an ITU-T committee charged with the responsibility of recommending worldwide standards for cable television. The qualifications of other senior staff are set out at <http://www.cablelabs.com/about/seniorstaff>. CableLabs has no affiliation with manufacturers and its focus has been on certifying equipment that will satisfy interoperability requirements and enhance the provision of cable services.

²⁴ MOU ¶ 3.7, *available at FNPRM*, 18 FCC Rcd at 545. Visit <http://www.cablelabs.com/udcp/> for a listing of CableLabs UDCP agreements and testing materials.

written agreements to protect confidentiality and to be free of conflicts of interest. Such standards of confidentiality, objectivity, and quality control are comparable to the requirements for independent laboratories.²⁵

Apart from these structural protections, CableLabs' has a track record of working collaboratively and successfully with manufacturers in the DOCSIS, OpenCable, and Packet Cable programs.²⁶ CableLabs has demonstrated its ability to fairly and expeditiously test and certify multiple types of equipment including over 370 retail cable modems that are available from over 65 vendors. Manufacturers are also currently using CableLabs facilities for OpenCable Certification. To date, two manufacturers, with a total of six models of DTVs, have already been certified with CableCARDS as OpenCable compliant by CableLabs on their "first try."²⁷ To advance product development in general, manufacturers can also participate in

²⁵ See, e.g., ISO/IEC 17025, §§ 4.1.5, 4.2, 4.7, 4.9, 4.14.1, 5.2, 5.3, 5.5, 5.9, ; ISO/IEC Guide 65, §§ 4.2, 4.5, 4.10, 5.2, 12, ; NVLAP/NIST Handbook 150, §§ 4.1.5, 4.2, 4.7, 4.12, 5.2, 5.3-5.5, 5.6, 5.9.

²⁶ There are now over 400 DOCSIS and CableHome devices that have received certification or qualification status in the last four years of CableLabs testing. CableLabs has also developed and implemented other interoperable technology platforms such as PacketCable and CableHome and started the entire process for retail set-top boxes and UDCPS with its OpenCable initiative. PacketCable™ is a CableLabs-led initiative to define a common platform to deliver advanced real-time communication services, such as VoIP, over two-way cable plant. Panasonic and Samsung have been certified for several models of integrated DTVs that connect directly to cable television systems and receive digital services without requiring a set-top box. See note 26 ("Samsung Electronics Receives CableLabs® Certified™ Status for Integrated Digital Television;" "Panasonic Introduces First Cable-Ready HDTV At CEDIA; Set With CableLabs Certification Leads The Way For HDTV Penetration."). CableHome™ is a CableLabs-managed initiative that, coupled with cable broadband service, allows for the distribution of broadband service throughout a consumer's home. The initiative offers the consumer a secure and managed residential gateway that can be connected to the cable network in a plug-and-play fashion, offloading much of the technical burden inherent in home networking from the consumer to cable operator. There are also now more than 20 devices certified or qualified in four PacketCable certification events. Altogether, more than 80 manufacturers have been certified by CableLabs under the various initiatives, including Panasonic, Samsung, Motorola, Scientific-Atlanta, Thompson, Toshiba, Texas Instruments, Linksys, Pioneer, D-Link, Ericsson, General Instrument, and Sony. For the complete listing, see: <http://www.cablelabs.com/certqual/whois-certified.html>. See *Commercial Availability of Navigation Devices*, Order on Reconsideration, 14 FCC Rcd 7596 41 (1999) ("Several milestones in OpenCable process occurred allowing entities outside the cable industry to make input into interface design specifications and "no party has brought forth evidence that their input is not being accepted or considered.")

²⁷ http://www.cablelabs.com/news/pr/2003/03_pr_oc_samsung_cert_121703.html ; http://www.panasonic.com/consumer_electronics/pressroom/cont2.asp?Filter=12&cont_id=515

“practice run” testing and scheduled lab time at CableLabs.²⁸ In sum, CableLabs has the facilities, staff, commitment and track record to ensure competent testing of UDCPs as contemplated by the Parties to the DFAST Agreement and the MOU.²⁹ Unfortunately, the same cannot be said for any entity which is arguably “knowledgeable” with respect to the JTS. In light of the importance of competent testing to assuring cable’s signal security and Congress’s explicit direction to the Commission to ensure that its rules not jeopardize signal security, we respectfully request that the Commission clarify that the use of the term “knowledgeable” encompasses the appropriate qualifications for third party labs contemplated by the MOU. In NCTA’s view, such qualifications would readily be satisfied by having equipment, staffing, and training comparable to CableLabs capabilities with respect to testing UDCPs. The proposed rule should at minimum require appropriate qualifications (such as having the equipment and training to properly execute the applicable test suite), rather than just “knowledge.” It would also benefit by stating more explicitly the requirement for independence that the Commission included within the rule.

We therefore suggest revising the language in the relevant rule as reflected in proposed amendments included in Exhibit A attached hereto. Such an amendment will more explicitly describe the necessary qualifications for UDCP testing, so that third-party testing facilities will

²⁸ As reported in NCTA’s Status Report of October 23, 2003 in CS Docket No. 97-80, a significant number of major companies have utilized CableLabs’ facilities for product development:

August 2003: 3 manufacturers
September 2003: 5 manufacturers
October 2003: 5 manufacturers
November 2003: 7 manufacturers
December 2003: 3 manufacturers

For the upcoming tests commencing in February, 2004, six major manufacturers have committed to submit products for “plug and play” verification or for practice runs. Several more have informally expressed interest, but have not yet submitted the formal requests as of this filing.

²⁹ MOU ¶¶ 2.1, 2.5, 3.9, available at *FNPRM*, 18 FCC Rcd at 540, 541, 547; DFAST Agreement ¶ 3.5, available at *FNPRM*, 18 FCC Rcd at 578.

be properly equipped, staffed and trained for the independent and objective testing of those “first-model” devices. The change would not have an impact on self-certification of subsequent models.

E. The Rules Should State Unequivocally that UDCPs Must Pass the Applicable Tests

There are two other matters that warrant clarification. Although the intention of the rules is undoubtedly that UDCPs submitted for testing must pass the tests, the rules adopted replaced the Parties’ proposed language requiring “passing results” with language merely requiring “testing.” While one can surmise the intent from a later requirement in the rule to retest for “failure,” it would be preferable for the rule to clarify that a device *must* pass the JTS in order to be certified.

Finally, the rules as adopted links the JTS to the wrong website. The site referenced does not exist. The JTS is posted along with all other required documentation for UDCPs at www.cablelabs.com/udcp. Successful testing means that results need to be subject to replication. The central location of all documentation helps assure that the JTS (that is, the PICS and the ATP that prescribes the means of satisfying the PICS) is consistent across qualified labs, so that a device that passes the JTS at any one lab will not fail at another lab. The suggested revised language (included in Exhibit A attached hereto) would correct this error.

III. TUNING AND GUIDE INFORMATION

Part of the MOU and proposed rules include requirements for carrying Program and System Information Protocol (“PSIP”). The parties asked the Commission to incorporate into its rules the entire February 2000 NCTA-CEA PSIP agreement.³⁰ The Commission instead

³⁰ See Letter from Carl E. Vogel, President and CEO Charter Communications, *et al.*, to Michael Powell, Chairman, FCC (Dec. 19, 2002), available at *FNPRM*, 18 FCC Rcd at 533, 534 (“We consider the joint agreements embodied

incorporated what it believed to be relevant portions of the February 2000 PSIP agreement into the language of the rules to “insure that cable operators carry PSIP data when received from content providers in conformity with the ATSC A/65B standard.”³¹ However, by incorporating only some provisions of the February 2000 PSIP agreement, some subtle changes of language from that Agreement occurred that may be susceptible to a misunderstanding. The Commission stated its intent to adopt the PSIP rules as proposed and address the other parties’ proposed revisions in other proceedings.³² NCTA identifies below three areas in which slight changes of wording will clarify the rules and avoid misunderstanding by any other parties not familiar with the intent of the February 2000 agreement.

§ 76.640 (b)(1)(iv)(B). This rule provides that:

(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.

This rule is consistent with the requirement contained in the February 2000 Agreement, but as presently written, this rule could mean that cable operators are not permitted to carry *more* than 12 hours of PSIP event information, which was not the intent of the February 2000 PSIP agreement. We understand that the Commission intended that the 12-hour period is a minimum. A clarification should read as shown in Exhibit A.

in these recommendations for regulations to be essential elements of the mutual understandings we have achieved. . . . [O]ur mutual support for this agreement rests on the recognition that all elements of it are essential. . . . [O]ur mutual, private sector undertakings, described in the attached Memorandum of Understanding, are contingent on the adoption of FCC rules as described above.”)

³¹ *Second R&O* at ¶ 23 (“Rather than incorporating by reference the entire document as proposed in the draft rules, we believe that incorporation of specific provisions is more appropriate. As a result, we hereby adopt those PSIP obligations that will ensure that cable operators carry PSIP data when received from content providers in conformity with the ATSC A/65B standard.”). The proposed rules are included in §§ 76.640(b)(1)(iv)(A)-(E) and (b)(1)(v)(A)-(E).

³² See *FNPRM*, 18 FCC Rcd at 555-62.

§76.640 (b)(1)(iv)(C). This rule provides;

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);

Because it has been removed from the context of the full PSIP agreement, the rule as drafted might suggest that cable operators are required to correct event information that has been sent by the content provider but does not conform to A/65B. The Commission should clarify that cable operators are not required to correct event information data provided by the content providers that does not conform to ATSC A/65B. A clarification should read as shown in Exhibit A:

§76.640 (b)(1)(iv)(A), (v)(A). These rules provide that when service information tables are transmitted in band- or out-of-band:

(A) The data shall, at minimum, describe services carried within the transport stream carrying the PSIP data itself;

This rule could be misinterpreted to mean that cable operators must describe *all* services contained within a transport stream that includes PSIP data; *e.g.*, data services or ancillary services, which was not the intent of the February 2000 PSIP agreement. As is evident from the adjacent text of the February 2000 PSIP agreement, the information tables referenced in the PSIP Agreement and now in the rule pertain to "available audio/video services," rather than to any services that might be contained in a transport stream. The Commission should clarify, in accordance with the PSIP Agreement, that service information conveyed relates to available audio/video services carried in-the-clear. A clarification should read as shown in Exhibit A attached hereto.

These minor PSIP clarifications will ensure that the MOU and implementing rules will effectuate the intention of the February 2000 PSIP agreement.

CONCLUSION

For the foregoing reasons, NCTA urges the Commission to amend its rules, clarify the qualifications for testing facilities and clarify the PSIP carriage requirements as requested.

Respectfully submitted,

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Exhibit A
Proposed Rule Changes

The amendments to the regulations should be as follows:

§15.38 Incorporations by Reference. ***

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

(1) Uni-Dir-PICS-I01-030903: "Uni-Directional Receiving Device: Conformance Checklist: PICS Proforma," 2003, IBR approved for §15.123.

§15.123 Labeling of Digital Cable Ready Products.

(c) ***

(1) The manufacturer or importer shall have a sample of its first model of a unidirectional digital cable product tested to show compliance with the procedures set forth in Uni-Dir-PICS-I01-030903: "Uni-Directional Receiving Device: Conformance Checklist: PICS Proforma" (incorporated by reference, see § 15.38) at a qualified test facility. If the model fails to comply, the manufacturer or importer shall have any modifications to the product to correct failures of the procedures in Uni-Dir-PICS-I01-030903: "Uni-Directional Receiving Device: Conformance Checklist: PICS Proforma" (incorporated by reference, see § 15.38) retested at a qualified test facility and the product must comply with the applicable procedures in § 15.38 before the product or any related model may be labeled or marketed. If a the manufacturer or importer's first unidirectional digital cable product is not a television, then that manufacturer or importer's first model of a unidirectional digital cable product which is a television shall be tested pursuant to this subsection as though it were the first unidirectional digital cable product.

(2) A qualified test facility is a facility-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 standards referenced in paragraph (b) of this section concerning the procedures set forth in Uni-Dir-PICS-I01-030903: "Uni-Directional Receiving Device: Conformance Checklist: PICS Proforma" (incorporated by reference, see § 15.38) and with the Acceptance Test Plan pertaining to the PICS proforma. 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.

(3) Subsequent to the testing of its initial unidirectional digital cable product model, a manufacturer or importer is not required to have other models of unidirectional digital cable products tested at a qualified test facility for compliance with the procedures of Uni-Dir-PICS-I01-030903: "Uni-Directional Receiving Device: Conformance Checklist: PICS Proforma" (incorporated by reference, see § 15.38) unless the first model tested was not a television, in which event the first television shall be tested as provided in § 15.123(c)(1). However, ~~the~~ manufacturer or importer shall ensure that all subsequent models of unidirectional digital cable products comply with the procedures in the Uni-Dir-PICS-I01-030903: "Uni-Directional Receiving Device: Conformance Checklist: PICS Proforma" (incorporated by reference, see § 15.38) and all other applicable rules and standards. The manufacturer or importer shall maintain records indicating such compliance in accordance with the verification procedure requirements in part 2, subpart J of this chapter. The manufacturer or importer shall further submit documentation verifying compliance with the procedures in the Uni-Dir-PICS-I01-030903: "Uni-Directional Receiving Device: Conformance Checklist: PICS Proforma" (incorporated by reference, see § 15.38) to a facility the testing laboratory representing cable television system operators serving a majority of the cable television subscribers in the United States.

§ 76.640 (b)(1)(iv)(B).

(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;

§76.640 (b)(1)(iv)(C).

(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;

§76.640 (b)(1)(iv).

(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: