ORIGINAL

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	)	
	)	

COMMENTS OF ECHELON CORPORATION

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SUMMARY

In this proceeding, the Commission must harmonize the "commercial availability" mandate in new Section 629 of the Communications Act with the congressional command for narrow, minimal cable equipment compatibility standards in Section 301(f) of the 1996 Act, the "Eshoo Amendment" to Section 624A of the Act. The NPRM has quite correctly followed Section 301(f)'s principle of deferring to open, consensus-based private standards-setting organizations, and has not proposed Commission adoption of the so-called "decoder interface" standard for cable compatibility as a means for achieving commercial availability of set-top boxes and other navigation devices.

The Commission can harmonize these two complementary statutory provisions by refraining from the adoption of mandatory government standards in this technologically dynamic market, where computer and television functionalities are increasingly converging. Echelon proposes the following as a way of meeting the requirements of these two different sections of the Act:

For analog CPE, the Commission should not take any action in this proceeding, but rather expeditiously resolve the cable compatibility issues presented in ET Docket No. 93-7. Echelon has been seeking closure of the cable compatibility proceeding, over the objection of the sponsors of the so-called "decoder interface" standard, for several years. No rules on analog navigation devices should be promulgated in this proceeding, at least in part because there is little if any reason to tackle the complex technical and signal security issues presented while the Commission is simultaneously undertaking an accelerated transition to the digital domain, for instance with its

aggressive schedule for roll-out of DTV by broadcasters. There is no reason to saddle consumers with unnecessary investment in soon-to-be-obsolete analog equipment when the market has already begun a rapid shift to digital transmission and digital scrambling.

For digital navigation devices, the Commission should impose only a conduct or performance and "right to attach" rule, leaving it to individual MVPDs and the marketplace for the finalization of technical standards for navigation devices. Echelon strongly supports the Commission's tentative conclusion that interface standards for digital CPE should be developed by the marketplace, not government fiat.

Finally, the FCC should carefully avoid approving all or any part of the decoder interface, or a "variant" of that standard, in this proceeding, since doing so would constitute an unlawful end run around Section 301(f). The analog decoder interface is unnecessary, anticompetitive, unlawful and—as the product of a closed, *ad hoc* government advisory committee process that does not meet due process and fairness requirements of accredited industry standards-setting bodies—cannot satisfy any legitimate criteria for approval or endorsement as a "voluntary" industry standard by this Commission.

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Echelon Corporation ("Echelon"), by its attorneys, respectfully submits these comments on the Notice of Proposed Rulemaking ("NPRM") released by the Federal Communications Commission ("FCC" or "Commission") in the captioned proceeding.[1]

Echelon applauds the Commission's thoughtful approach in seeking comment on the scope of its standard-setting authority and refraining from adoption of compulsory technical standards for set-top boxes and other so-called "navigation devices." To this end, Echelon urges the Commission to pursue its "preferred option" and avoid interfering in the standards-setting process, leaving this task to the marketplace and voluntary, consensus-based industry standards organizations.

INTRODUCTION

In this proceeding, the FCC seeks comment on how it should implement Section 629 of the Act, 47 U.S.C. § 549, added by Section 304 of the Telecommunications Act of

[1] *Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, Notice of Proposed Rulemaking, FCC 97-53, CS Docket No. 97-80 (released February 20, 1997) ("NPRM").

1996 (the "1996 Act").[2] Section 629 instructs the Commission to "assure" that navigation devices and other customer premises equipment ("CPE"), such as cable set-top boxes, are "commercially available" from "manufacturers, retailers, and other vendors not affiliated with any multichannel video programming distributor."[3] However, the Commission's regulations may not interfere with the ability of multichannel video programming distributors ("MVPDs" or "cable system operators") to protect the security and integrity of their signals.[4]

Currently, cable system operators lease to subscribers set-top boxes that provide both feature access and security functions.[5] One option the Commission is considering under Section 629 is to require the "unbundling" of the navigation (*i.e.*, tuning and feature access) functions from the security (*i.e.*, conditional access) functions of these descrambling devices.[6] The Commission seeks comment on such an unbundled architecture, and whether this design would require the use of "a standard interface . . . permitting security control apparatus obtained from the service provider to be combined with other equipment obtained by the subscriber from retail outlets."[7] In particular, the Commission questions whether it has the statutory authority under Section 629 to "approve a variant of the decoder interface connector" developed in the FCC's long-pending cable equipment compatibility proceeding.[8]

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[2] Pub. L. 104-104, 110 Stat. 56, § 302 (1996), codified at 46 U.S.C. 629.
[3] 47 U.S.C. § 549.
[4] NPRM at ¶ 2.
[5] *See* NPRM at ¶ 5.
[6] NPRM at ¶ 34.
[7] NPRM at ¶ 34.
[8] NPRM at ¶¶ 34, 72, 74.

In examining these issues, it is important to recognize that Section 629 does not bestow the FCC with standard-setting authority, but rather requires the Commission to "consult" with "appropriate industry standard-setting organizations."[9] Moreover, as the NPRM correctly noted, this question must be considered in light of Section 301(f) of the 1996 Act (amending Section 624A of the Act), which directly limits the Commission's standard-setting authority with regard to cable equipment compatibility.[10]

These statutory directives are consistent with the Commission's stated "preference" in this proceeding "not to develop standards ourselves, but to urge the adoption of voluntary standards."[11] The congressional guidelines and the FCC's own long-standing policies support the principle, which permeates the 1996 Act, that government intervention through mandatory standards has the dangerous public policy consequences of retarding technological development and innovation. With these points in mind, the NPRM has taken a thoughtful and careful approach, and the Commission has appropriately declined to propose adoption of any compulsory interface standard for achieving commercial availability of set-top boxes under Section 629.

The Commission must reject outright any argument that it adopt or approve the standard proposed by the cable television and consumer electronics industries for cable equipment compatibility, known as the "decoder interface," in this proceeding. Through the extraordinary step of amending the statutory framework in a pending Commission rulemaking, Congress has specifically prohibited adoption of the decoder

[9] NPRM at ¶ 2.
[10] NPRM ¶¶ 34-36.
[11] NPRM at ¶ 66.

interface in the cable equipment compatibility docket. Adopting the same standard in this proceeding would be an improper "end-run" around Congress' explicit intent in amending Section 624a of the Act.

Moreover, the decoder interface standard is no longer needed to serve the limited functions for which it was initially conceived. The marketplace and the development of digital technology have made this costly and overbroad standard obsolete. Nevertheless, proponents of the decoder interface incessantly to fight for its acceptance because it serves as a "Trojan Horse," incorporating protocols and physical specifications that are unnecessary for cable compatibility, but which would provide regulatory protection against market competition for certain companies, namely television manufacturers, that prefer to gain market share in the halls of the FCC rather than the competitive marketplace itself. The Commission has always been vigilant against efforts to "game" the regulatory process to achieve marketplace advantage by administrative fiat, and should be vigilant to avoid accepting at face value arguments that the decoder interface, or any mandatory standard, is required to achieve the objectives of Section 629.

Importantly, adoption of the decoder interface would create a perverse paradox for American consumers at a crucial juncture in the development of the computer, television and consumer electronics industries. Through its digital television ("DTV") proceeding, the Commission recently bestowed valuable digital spectrum to television broadcasters for the promotion of digital transmission of video signals.[12] In its *Fifth*

[12] *Advanced Television Systems and Their Impact Upon Existing Television Broadcast Service*, Fifth Report and Order, FCC 97-116, MM Docket No. 87-268, (released April 21, 1997) ("Fifth Report and Order"); *Advanced Television Systems and Their Impact Upon Existing Television Broadcast Service*, Sixth

(Footnote continued on next page)

Report and Order, the Commission adopted an "aggressive" digital transition schedule which requires that by the year 2006, broadcasters must simulcast 100 percent of their programming in both digital and analog format until the analog channel is terminated and that spectrum returned.[13] The Commission's efforts and leadership in effecting this transformation have been accompanied by an incredible and rare groundswell of support from industry, Congress and the media for the FCC's policy of accelerating the transition to a digital broadcast and video entertainment marketplace.

Because digital programming can only be viewed on compatible equipment, consumers are being asked to participate in the switch to digital by investing in new-generation digital TV receivers and VCRs. While the transition to digital technology will provide consumers with vastly superior video quality and wider service options, the move will not be without substantial cost. Consumers will have to invest millions, if not billions, of dollars in new digital CPE, and broadcasters will need to invest even more in a new digital infrastructure.

In an effort to squeeze in one more "bite at the analog apple," however, consumer electronics manufacturers are still proposing that the Commission adopt, approve or otherwise "build upon" their analog decoder interface standard. This standard will effectively render obsolete all current analog video CPE (more than 200 million existing television sets), requiring consumers to invest in one last round of "cable ready" analog equipment before TV manufacturers bring their digital equipment to market. Forcing this paradox of financial burden on consumers at the dawn of digital

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Report and Order, FCC 97-115, MM Docket No. 87-268 (released April 21, 1997) ("Sixth Report and Order").

[13] Fifth Report and Order at ¶ 56.

television provides an anticonsumer and anticompetitive regulatory advantage to TV and VCR manufacturers. It also directly threatens the overriding policy of accelerating the transition to a digital television marketplace. Rather than incenting consumers to invest in what are rapidly becoming antiquated analog devices, the Commission instead should continue its aggressive course toward digital technology, where a government-imposed standard interface is plainly not needed to assure the commercial availability of navigation devices.

BACKGROUND: HISTORY OF THE DECODER INTERFACE

The decoder interface standard, referenced in the NPRM, is a new physical connection and communications protocol that, among other things, would "govern the separation of access control from other CPE functions," such as tuning and feature functions, for TVs, VCRs and set-top boxes.[14] While the FCC's preference is to avoid interfering in the standard-setting process, one of the issues in this proceeding is whether the Commission has the authority to, and if so whether it should, adopt such a standard to assure commercial availability of navigation devices.[15] In order to fully appreciate the dangerous consequences the decoder interface presents for the Commission and consumers, it is necessary to consider the decoder interface's convoluted and rather scarred history.

The decoder interface, also known as IS-105, originated in 1993 in the cable equipment compatibility proceeding (ET Docket No. 93-7) in response to Congress' mandate that the Commission promulgate regulations to solve several specific

[14] NPRM at ¶ 36.
[15] NPRM at ¶¶ 34-36.

compatibility issues for cable television set-top boxes under Section 17 of the 1992 Cable Act.[16] Specifically, the 1992 Cable Act instructed the Commission to promulgate regulations to ensure that set-top boxes did not interfere with the functionality of premium TV receiver features, so that consumers could: watch one channel while simultaneously videotaping another channel; tape two consecutive programs that appear on different channels; and use advanced television picture generation and display features, such as picture-in-picture.[17]

The Commission turned to the cable television and consumer electronics industries in an effort to implement the 1992 Cable Act's compatibility mandate. At the FCC's direction, in 1994 the Cable-Consumer Electronics Compatibility Advisory Group (the "C3AG")—a newly formed working group of the Joint Engineering Committee ("JEC") of the Consumer Electronics Manufacturers Association ("CEMA") and the National Cable Television Association ("NCTA")—developed and formally proposed the decoder interface as the solution for cable equipment compatibility.[18] Neither the JEC nor the C3AG are accredited standard-setting bodies under the American National Standards Institute ("ANSI"), and their closed and exclusive procedures effectively shut out potentially affected industries from the technical and substantive decision-making process. Thus, the C3AG's process did not comply with the well-settled ANSI

[16] 47 U.S.C. § 624a.

[17] 47 U.S.C. § 624a(c)(1)(B).

[18] Cable-Consumer Electronics Advisory Group Proposal for the Decoder Interface Standard, ET Docket No. 93-7 (filed Aug. 15, 1994); *see* Letter from Jeffrey A. Campbell to William F. Caton, Aug. 15, 1994 (forwarding C3AG Proposal).; Proposal of the Consumer Electronics Group of the Electronics Industries Association for a Decoder Interface Standard, ET Docket No. 93-7 (filed Aug. 15, 1994)("EIA/CEG Decoder Interface Proposal"). The C3AG committed to "report to the FCC on the status" of its standards activities by December 31, 1994. C3AG Proposal, at 1. No such report was filed.

requirements for openness, balance and fairness in development of voluntary industry standards.[19]

In the 1996 Act, Congress responded to the decoder interface by passing Section 301(f)—sometimes referred to as the "Eshoo Provision" in reference to its original sponsor. As explained below, Section 301(f) amends Section 17 of the 1992 Cable Act (codified as Section 624A of the Communications Act) to significantly narrow the Commission's standards-setting authority in order to preclude adoption of the decoder interface in the cable compatibility proceeding.

Faced with this congressional prohibition of the decoder interface in the cable equipment compatibility proceeding, its supporters then sought to sustain the standard by proposing its adoption in yet another Commission proceeding, the "inside wiring" docket initiated in 1995.[20] Indeed, at that point Circuit City suggested that the decoder interface could be legitimized as an inside wiring regulation, and contended that "a separate or unique proceeding" was not necessary to comply with Section 629.[21] In response to this effort, Echelon argued that Commission adoption of the decoder

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[19] For instance, although representatives of non-cable consumer electronics firms were permitted to attend C3AG meetings, all key votes with respect to the decoder interface were taken as "block" votes in which the respective cable and consumer electronics "caucuses" each had one collective vote. Thus, other potentially affected industries—even where they had notice of the C3AG proposals and the opportunity to participate—were permitted no technical or substantive role in development of the decoder interface standard. Significant policy issues were referred to a four-person group, known as the "C4AG," comprised of two members from the cable television industry and two members from the consumer electronics industry, excluding representation of all other potentially affected industries. *See* Section IV(D) below.

[20] CEMA Comments, CS Docket No. 95-184, at 13-15; Circuit City Comments, CS Docket No. 95-184, at 8-9, 15-17.

[21] Circuit City Comments, CS Docket No. 95-184, at 15. In response, Echelon demonstrated that Section 629's requirement that the Commission "'adopt regulations' is a clear statutory reference to an on-the-record rulemaking, and there is nothing suggesting that Congress intended the FCC to incorporate commercial availability regulations into a proposed rulemaking, initiated before passage of the 1996 Act, on the very different subject of inside wiring." Echelon Reply Comments, CS Docket No. 95-184, at 15-16.

interface in the inside wiring proceeding would be "unfair, unwise and unlawful," and urged the Commission to "initiate a separate commercial availability rulemaking to implement Section 304 [Section 629 of the Act]."[22] Echelon thus applauds the Commission's decision to issue a separate NPRM on commercial availability of navigation devices, as well as the NPRM's thoughtful inquiry into the FCC's standards-setting authority in promulgating regulations pursuant to the Act's commercial availability provisions.

During this same period, a coalition of the leading members of America's computer and high-technology industries filed a joint petition for reconsideration in the cable compatibility proceeding, urging the Commission to seek public comment, for the first time, on the decoder interface standard.[23] The joint petitioners demonstrated that the decoder interface violates the narrowed scope of permissible cable compatibility standards under the 1996 Act, and urged the Commission to seek public comment "from all potentially affected industries on the appropriate means of achieving Congress' new mandate for 'narrow technical standards.'"[24] CEMA and NCTA argued in opposition to reconsideration that the petition was "premature" because the decoder interface standard was not yet completed.

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[22] Echelon Reply Comments, CS Docket No. 95-184, at 18.

[23] Joint Petition for Reconsideration, *Implementation of Section 17 of the Cable Television Consumer Protection and Competition Act of 1992—Compatibility between Cable Systems and Consumer Electronics Equipment*, ET Docket No. 93-7 (filed May 28, 1996). The parties joining the joint petition and its supporting reply were: American Innovations, Ltd., Apple Computer, Inc., Central & South West Communications, Inc., Cisco Systems, Inc., Detroit Edison Company, Echelon Corporation, Enernet Corporation, EUA Cogenix Corp. d/b/a EUA Day, Global Village Communication, Inc., Intel Corporation, IntelliNet, Inc., Leviton Manufacturing Co., Inc., Kleiner Perkins Caufield & Byers, LightMedia Interactive Corp., Netscape Communications Corp., Novell, Inc., Pensar Corporation, Silverthorn Group, Inc., Solution Enterprises, Inc., Sun Microsystems, Inc., Venrock Associates, Wisconsin Public Service Corp. and WISVEST Corporation.

[24] Joint Petition at 8.

In March of this year, five years after first introducing the decoder interface concept, the C3AG finally submitted what it termed a "Summary of Final Agreement on Cable Ready Television Receivers."[25] Explaining that "[c]onsiderable progress" had been made in the area of cable-consumer electronic compatibility, the C3AG sated that it anticipates the "support" and encouragement" of the FCC on the decoder interface,[26] but curiously did *not* propose FCC adoption of the standard in ET Docket No. 93-7. Immediately after this C3AG filing, Echelon once again urged the Commission to seek public comment on "(i) whether this is an appropriate standard under section 17 of the 1992 Cable Act, and (ii) whether the standard satisfies the specific criteria provided in Section 301(f) of the 1996 Act."[27] The Commission to date has still not acted on cable compatibility, despite the admonishment of the Conference Report to the 1996 Act that Congress "intend[ed] that the Commission should promptly complete its pending rulemaking on cable equipment compatibility."[28]

In apparent response to proponents of the decoder interface, the Commission has inquired in the instant NPRM whether it should "approve a variant" of the decoder interface for purposes of commercial availability under Section 629. Thus, while successfully blocking Commission action in the cable equipment compatibility rulemaking—pursuant to which the decoder interface standard was developed and

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[25] Letter from George Hanover, Consumer Electronics Manufacturers Association, and Wendell Bailey, National Cable Television Association, to William F. Caton, FCC, dated March 10, 1997; Letter from D. Nall, on behalf of C3AG, to A. Stillwell, Economic Advisor, FCC Office of Engineering and Technology, dated March 11, 1997.

[26] Summary of Final Agreement on Cable Ready Television Receivers by the Cable-Consumer Electronics Compatibility Advisory Group, ET Docket No. 93-7, at 6 (filed March 11, 1997).

[27] Echelon Ex Parte, ET Docket No. 93-7, March 28, 1997.

[28] H. Rep. No. 104-458, 104th Cong., 2d Sess. 117, 170 (1996)("Conference Report").

submitted—the proponents of that standard have again put it at issue for satisfying a different purpose in a different FCC rulemaking. As if shopping for a foster home for a technical orphan, the developers of this standard continue to suggest Commission consideration of their work in realms far removed from the limited context of the 1992 Cable Act under which it first arose.

For the reasons that follow, Echelon urges the Commission to reject any renewed attempt to force-feed the decoder interface in this unrelated proceeding. The utility, appropriateness and legality of the decoder interface standard should be determined by the Commission, under the amended scope of Section 624A of the Act, in ET Docket No. 93-7. This proceeding should be limited to digital set-top boxes and CPE, with any Commission action on analog cable equipment predicated on timely disposition of the decoder interface in the long-pending cable equipment compatibility rulemaking.

DISCUSSION

I. GOVERNMENT-MANDATED STANDARDS WILL IMPEDE COMPETITION, UNDERMINE TECHNOLOGICAL DEVELOPMENT AND HARM CONSUMERS IN THE DYNAMIC AND CONVERGING COMPUTER AND DIGITAL TELEVISION MARKETPLACE

The Commission's consideration of its authority to set standards comes during a period of explosive growth and convergence in high-technology industries. Incredible advancements in the past few years, particularly the emergence of digital technology, coupled with a robust and competitive marketplace, have led to magnificent developments in both the computer and television industries. One of the primary reasons these markets have been able to progress so rapidly has been the absence of government interference in setting standards. Technical standards in most high-tech

markets, and in particular the technologically vibrant computer industry, have been the result of the consensus, voluntary standards-setting processes or *de facto* standards established by the technological leaders in a particular market. Examples of such market-driven standards are pervasive, ranging from 3.5 inch computer diskettes, audio compact disks and CD-ROMs, to computer modems, data compression protocols, videocassette and digital video disk formats, and to computer operating systems and bus connector interfaces such as SCSI, RS-232 and the like, to name just a few.

Regardless of whether the Commission has the authority to impose compulsory standards under Section 629, as a public policy matter the Commission should refrain from mandating technical standards for commercial availability. Government-mandated standards are particularly damaging to innovative and dynamic markets, such as high-technology industries. Because of the growing convergence between the broadcast and computer environments and the accelerating movement toward digital products, these industries will be directly affected by any analog-based interface standards for set-top boxes or other navigation devices. Moreover, a government-mandated standard under Section 629 would violate not only the Commission's traditional "hands-off" approach and stated preference in the NPRM, but also undermine Congress' consistent and clear directive that the Commission should defer to appropriate private standard-setting bodies.

A. Responding to Marketplace Incentives, the Computer and Television Industries are Rapidly Converging

In what has become known as the "digital battle of the eyeballs," computer and television manufacturers are broadening their respective products and services to offer

both broadcast and computer-like functions. The result is a rapid and exciting convergence of the television and computer markets, "TV-PC convergence."

In this struggle, each industry is competing to expand its audience. By developing and marketing computers which incorporate television receivers to display video programs, Silicon Valley is working to entice "the couch potato" into the computer market and to move the personal computer ("PC") from the office or study into the living room. For example, Netscape Communications' affiliate Navio Communications, Inc. is currently designing "scalable Internet software" based on open standards and Netscape's World Wide Web browser technology for use with televisions, network computers, small telephones and game players.[29] Likewise, PC manufacturers such as Gateway 2000,[30] Compaq[31] and Toshiba have developed and are already selling large computer monitors that bundle television tuners and remote control capabilities. In another move that analysts expect will hasten the conversion of broadcast and computer technologies, Microsoft has recently decided to purchase Web TV.[32] As Andy Grove, CEO of Intel Corporation, explained prophetically in 1995, "[t]he PC is it. . . . We can make it so superb as an entertainment machine, and so vital as a communications medium for both the home and workplace, that it will battle with TV for people's disposable time."[33]

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[29] *Navio Launches Its Internet Software For Consumer Products*, Network Computer News, January 28, 1997.

[30] Gateway 2000's Destination system was the first PC to integrate a TV tuner and a large-screen (31 inch) monitor. *The Computerization of Television*, Richter Scale, November 12, 1996.

[31] Compaq plans to announce its new "PC-TV hybrid," which will have full computer and big screen TV functionalities. *Compaq Pushes TV-Computer Convergence*, Yahoo Internet Life, March 24, 1997.

[32] *Microsoft to Buy WebTV for $425 Million*, The Wall Street Journal, April 7, 1997; *Microsoft Deal to Aid Blending of PCs, TVs and the Internet*, New York Times, April 7, 1997.

[33] *Why Andy Grove Can't Stop*, Fortune, July 10, 1995.

On the other front, television manufacturers are incorporating more advanced functions, such as Central Processing Units ("CPUs") and other computer capabilities, into TVs in the hope that they will dominate the consumer video and data markets. For instance, Phillips Electronics, Sony and Zenith—through an arrangement with Network Computer, Inc.—are now offering Internet access through the television.

The emergence of digital technology is hastening TV-PC convergence and the associated competitive struggle for dominance of a newly emerging digital market, the precise scope of which is still very unclear. Distinguishing themselves, the two industries have chosen different technical formats for the transmission of digital broadcast signals. The computer industry has decided to rely on a "progressive" scanning format, which is incompatible with the "interlaced" format chosen by the broadcasters for digital transmission.[34] By using progressive scanning, computer companies will provide television pictures with superior resolution in a manner similar to the way images are currently displayed on the computer monitor. According to the New York Times, "[c]omputer makers, who intend to have tens of millions of their combined PC-televisions in the market during the next few years, are betting that they can force the slower-moving television industry to cave in and embrace their approach."[35] For example, several manufacturers have announced that the progressive scanning format will be "standard equipment" in all their PCs sold next year in the United States.[36]

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[34] Progressive scanning produces a picture with greater resolution and fewer lines. Under this format, computer televisions will display an NTSC television picture made up of 525 lines. When 35mm movie film is the programming sources, a higher resolution of 720 lines will be used.

[35] *Computer Makers Challenge Broadcasters Over TV Format*, The New York Times, April 8, 1997.

[36] *Id.*

These divergent strategies set the two industries on what some observers have termed "a collision course," the result of which will have a direct impact on the future role and position of navigation devices.[37] For example, some companies may choose to bypass the set-top box and incorporate feature access and security functions directly into their equipment. Others may use the set-top box as a "digital server" to provide not only multichannel video programming, but also to offer Internet access, telecommunications and home automation functions in a digital rather than an analog format. The "spoils" of this competitive struggle are significant. According to the Washington Post, "[t]he emerging industrial brawl between television manufacturers and computer makers has huge stakes. Americans spent $19 billion on computers and $10 billion on TV sets last year."[38]

One thing is certain, *all* the current technological breakthroughs and product development are focused forward on the new digital environment. Analog is the technology of the past, and it cannot, and should not, survive in a progressive digital world. Any government-imposed standard, let alone the analog decoder interface, at such a critical stage of technological development threatens to retard the speed at which the market, and consumers, can transition to a digital environment.

B. Government-Mandated Standards are Poor Technology Policy And Inconsistent With the Commission's Traditional Policies Towards Communications Standards-Setting

The NPRM's reluctance to impose Commission technical standards for commercial availability is well-founded. Government-mandated standards are

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[37] *Id.*

[38] *TV's Wave of the Future Takes On a Digital Look*, The Washington Post, April 28, 1997.

inconsistent with the Commission's traditional policy on communications standards setting, for instance, its refusal to set a technical standards for Personal Communications Services ("PCS") or for computer data modems. It is consistent with a large body of economic evidence showing that government intervention in technology standards is anticompetitive and contradictory to rapid technical change in technologically-intensive industries. And the NPRM's preference for private industry standards is justified by the Commission's actions on DTV, where only extraordinary reasons justified Commission adoption of a standard, and where the FCC worked hard to ensure competitive neutrality between different, competing industries that would have to implement the standard.

1. *The Commission's Traditional Policy is for Industry to Establish Technical Standards in Communications Markets*

In this proceeding, the Commission has emphasized that its preferred approach to commercial availability is to "adopt only a conduct or performance rule . . . *leaving to the industry participants involved the task of developing the necessary interface standards.*"[39] The Commission's position to rely on industry-based standards is consistent with sound public policy principles that the FCC has traditionally applied to standards-setting in communications markets. Government-mandated standards stifle innovation, discourage product design and development, and freeze current technologies that may become obsolete and outdated in the near future.[40] This effect is exacerbated when applied to industries characterized by rapid change and development—like

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[39] NPRM at ¶ 73 (emphasis added).

[40] *See, e.g.*, Comments of the Computer Industry Coalition on Advanced Television Service ("CICATS"), MM Docket No. 87-268, July 11, 1996, at 8 ("CICATS Comments").

America's vibrant high-technology industries. Technological advances should not be stymied or delayed by government standards that require lengthy procedures to revise or update.

In the past, motivated by the threat of hampering the growth of technological development, the Commission has affirmatively declined to impose standards in newly-emerging, technically variable communications markets. For example, in the PCS area the Commission chose not to mandate any transmission standards, and instead limited its technical standards to those necessary to prevent interference—power and antenna height limits and RF radiation limits.[41] The FCC chose this minimalist approach because it concluded that "PCS is in a nascent stage in its development and that imposition of a rigid technical framework could stifle the introduction of important new technology."[42] Thus, the market was given free reign to drive the development of standards in a newly emerging technology. As Chairman Hundt has explained: [43]

> Now in the PCS industry, because we knew we could not predict the future, the FCC decided to set no standard and let the market pick one. As a result, CDMA is flourishing in this country and is a rival to the European government-selected standard. That seems to have worked. So why should the government mandate a digital TV standard and forbid others? Or should the FCC be picking standards for these other industries? What's the theory here? *And is it possible that those who advocate a government standard, whether TV manufacturers or computer software groups, are seeking some sort of business advantage?*

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[41] *Amendment of the Commission's Rules to Establish New Narrowband Personal Communications Services*, Gen. Docket No. 92-100, First Report and Order, 8 FCC Rcd 7168 (1992).

[42] *Amendment of the Commission's Rules to Establish New Personal Communications Services*, Gen. Docket No. 90-314, Second Report and Order, 8 FCC Rcd 7755 (1993).

[43] Statement of Chairman Reed Hundt, Broadcasting and Cable Interface Conference, September 24, 1996 (emphasis supplied).

Similarly, the Commission has consistently refrained from establishing technical standards for computer modems. While the FCC adopted "right to attach" and network safety regulations, it has avoided any interface, protocol or interoperability standards for modems. As a result, the market, responding to consumer demand, has developed the physical interface and "handshake" protocols that have enabled modems to interoperate, for modem speeds to increase geometrically in just a few short years, and for the emergence of computer-based online communications as one of the fastest growing markets in the communications industry. The Commission's hands-off approach permitted modem manufacturers to develop new generations of technologically advanced products that have steadily "pushed the envelope" of data communication speed and reliability. Government-regulated standards could never have matched the pace that the marketplace was able to achieve. Thus, the Commission's traditional reluctance to interfere in technological development has fostered an environment which has encouraged significant advances in telecommunications technology, benefiting consumers far more than compulsory interface or other technical standards could ever have achieved.

2. *Strong Economic Evidence Justifies the Commission's Preference to Avoid Interfering in the Standard-Setting Process*

There is a wide body of independent economic evidence which demonstrates the harmful consequences of government interference in the standard-setting process.[44]

[44] *See, e.g.*, Bruce M. Owen & Steven S. Wildman, "Video Economics," at 261 (Harvard University Press 1992); Stanley M. Besen & Leland L. Johnson, "Compatibility Standards, Competition and Innovation in the Broadcasting Industry," at 131 (The Rand Corporation 1986); Jeffrey Kraus, "Implications of FCC Regulation of Telecommunications Technical Standards," *IEEE Communications Magazine*, at 28, 31 (Sept. 1982); *Advanced Television Systems and Their Impact Upon Existing Television*

(Footnote continued on next page)

The Clinton Administration has stressed that "[g]overnments are not the best arbitrators of technology, and government intervention risks encouraging adoption of standards that are either ultimately inferior or inappropriate to demands of the market."[45] Articulating this same point, NCTA argued in the DTV proceeding that government-mandated standards "will freeze technology in a rapidly changing industry and unnecessarily define commercial development of the technology."[46] Government should not limit the potential for technological development, by "substitut[ing] its judgment for that of the marketplace."[47]

These principles are echoed by telecommunications and antitrust economist Bruce Owen, who has explained that government-imposed standards risk freezing potentially inferior technologies:

> [T]here are inherent risks in mandating a standard. First, because it cannot know the future development of technology, costs, and demand, the government may simply mandate the wrong standard, one that is inferior not only to the optimal standard, but also inferior to whatever possibly non-optimal voluntary standard would develop. Second, a government-enforced standard will reduce the incentive to develop a superior alternative. If a superior alternative is developed, a government-mandated standard will surely impede its adoption.[48]

Michael Katz, former Chief Economist of the Commission, points out that it is entirely plausible that in setting mandatory standards, "the government will act to serve the

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Broadcast Service, Fifth Further Notice of Proposed Rulemaking, FCC 96-207, MM Docket No. 87-268, at ¶¶ 33-34 (released May 20, 1996) ("Fifth FNPRM").

[45] *See* "From the Gutenberg Bible to the GII, Vice-President Gore on the Common Legacy of the Global Information Infrastructure," *Roll Call*, March 13, 1995.

[46] NCTA Comments, MM Docket No. 87-268, at 8 (July 11, 1996).

[47] *Id.*

[48] Declaration of Bruce M. Owen in MM Docket No. 87-268, at 9-10 ("Owen Declaration"); *see* Garth Saloner, "Economic Issues in Computer Interface Standardization," 1 Econ. Innovation and New Technology 135 (1990).

current generation of producers and users, while acting to block or impose inefficiently high costs on emerging technology."[49]

The risk that government-mandated standards can lock out new technologies from entering the market is especially troublesome in markets in which technological change is rapid and unpredictable, like the current environment for set-top boxes and navigation devices. Even if a new technology is superior, the vested standard has the political and legal protection of government sanction. The Federal Trade Commission has noted that entry problems are "particularly acute" for innovative high-tech producers.[50] An innovator must overcome the burden and cost of proving conformance with the established standard and delays in standard revisions and certification processes. "[M]andatory standards and certification can be analyzed as a form of government-granted monopoly power, which like patents can absolutely prevent new competition. . . . Even a standard that once reflected the state-of-the-art can become a barrier to innovation as technology progresses."[51] With government-mandated standards:

> New technologies must vie for acceptance, not only in the economic marketplace, but also in the political marketplace. Producers of the dominant technology will have a powerful vested interest in stifling the new technology in the political arena. New technologies with great merit may be frozen out for years, simply because of the slow pace at which government agencies change policies, a pace dictated by consideration of procedural fairness and due process rather than economic efficiency.[52]

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[49] Michael L. Katz & Carl Shapiro, "Systems Competition and Network Effects," 8 J. Econ. Perspectives 93, 112-13 (1994); *see* Richard Gilbert, "Symposium on Compatibility Incentives and Market Structure," 40 J. Indus. Econ. 1 (1992).

[50] Federal Trade Commission, *Standards and Certification*, Final Staff Report, at 60-61 (April 1983).

[51] *Id.*

[52] Owen Declaration at 9-10.