

could be read more broadly so as to include the entire spectrum of video customer premises equipment.^{21/}

Such a broad interpretation would go well beyond Congress' intent in enacting Section 629. Congress was clear that only equipment which is intended to be primarily used to enhance a consumer's ability to lawfully access an MVPD's distribution network must be deemed within the scope of Section 629. By using the term "navigation devices" in the title of Section 629, Congress intended to convey the notion of a device which assists a consumer in "navigating" through the ever expanding array of services offered by MVPDs. Thus, channel selection, channel mapping, and program guide information are all functions properly covered by the term "navigation device" within the meaning of Section 629. Indeed, Congress specifically directed that Section 629 not be read expansively to grant the Commission broad jurisdiction over all equipment.^{22/} The Commission must keep this important limitation in mind in adopting any regulations to cover any equipment under this provision.

Along these lines, the term "navigation device" for purposes of Section 629 should not encompass any device which provides any security or conditional authorization function, but rather should be strictly limited to devices which add features or functionalities to any service which a consumer has been expressly authorized to receive from an MVPD. Examples of navigation devices would include basic converters (tuners), program guides and programming search engines (*e.g.*, StarSight), icon software, and parental blocking devices (*e.g.*, V-chip). Furthermore, as such equipment should not limit subscribers' ability to

^{21/}NPRM at n. 28.

^{22/}H.R. Conf. Rep. No. 458, 104th Cong., 2d Sess. 181 (1996) ["Conf. Rep."].

receive MVPD services of their choice, any commercially available video navigation device which is marketed as "cable ready" must be able to support all functions and services offered by a cable operator (*e.g.*, on-screen guides, impulse pay-per-view, *etc.*).^{23/} In the analog world, this concern has been addressed in the compromise decoder interface specifications agreement recently submitted to the Commission by the C3AG in the ongoing rulemaking to implement Section 624A of the Communications Act.^{24/} These criteria ensure that a rich command set can be passed from cable-ready consumer electronics equipment to the decoder interface which will support the implementation of ancillary functions as well as security.^{25/} In the digital world, this concern can be addressed by a Commission requirement that cable ready equipment contain a hardware platform that will support the downloading and execution of hardware transparent applications, such as program guides, parental control and the like that are offered by the MVPD. Naturally, equipment manufacturers might choose to provide a hardware platform on cable ready navigation devices which also supports applications offered by third parties (*e.g.*, StarSight), as warranted by marketplace demand.

Certain types of equipment, not primarily used to *access* MVPD services, must be excluded from the navigation device definition. Foremost, any equipment that performs

^{23/}Cable modems and similar devices which are used to access cable services other than video programming services delivered over a cable system should be found beyond the scope of Section 629, particularly in light of Congress' direction that "the Commission avoid actions which could have the effect of freezing or chilling the development of new technologies and services." *Id.* In any event, there is every indication that voluntary interindustry efforts will result in the commercial availability of cable modems which will be highly portable and interoperable among cable systems. *See*, "MCNS Agreement Could Lead to Cheaper Modems in Early 1998," Multichannel News (March 24, 1997) at 77.

^{24/}*See* C3AG Compromise Summary, *supra*.

^{25/}*Id.*

network security functions, such as decoders, descramblers, addressable converters, network interface modules, interdiction devices, and other equipment performing security functions (hereinafter "security devices") must be excluded pursuant to Section 629(b), which bars the Commission from taking any action that would jeopardize signal security or facilitate theft of service. Time Warner is aware of no lawful consumer or social/economic benefit or increased utility that arises from making any device providing proprietary security functions available for retail purchase. Proprietary security devices should be commercially available only where the affected MVPD, as a matter of business judgment, elects to deploy a security technology conducive to such an arrangement. Conversely, no MVPD should be required to deploy a security technology which does not allow the MVPD to retain control over the availability and distribution of the security devices.^{26/}

Even with respect to equipment which may meet the definition of a navigation device, there are entire categories of consumer electronics equipment which are already marketed in a fully competitive environment, and with which the Commission need not concern itself in this proceeding. Section 629(d)(1) gives the Commission discretion to determine that the marketplace is functioning adequately and no regulations are necessary with regard to certain types of equipment.^{27/} In the NPRM, the Commission correctly recognized that the great

^{26/}In addition, wiring located within subscribers' premises that is used to connect subscribers' equipment to an MVPD network cannot logically be classified as a "navigation device" and cannot be included within the ambit of Section 629. Further, as inside wiring has been and is being considered as part of an entirely separate on-going proceeding at the Commission, Congress could not have been contemplated to be included in this proceeding. In any event, inside wiring is commercially available today from virtually any electrician or antenna installer in addition to the local cable operator.

^{27/}47 U.S.C. § 549(d)(1).

majority of equipment used to receive multichannel video programming and other services offered by MVPDs is already commercially available and therefore need not be regulated under Section 629.^{28/} Examples include television sets, VCRs, digital video disc players, “basic” analog converters (*i.e.*, not performing security functions), universal remote control devices, input selector switches, parental lockout devices, television and satellite antennas, and even terminals which allow reception of programming guides, such as StarSight, utilizing proprietary distribution technologies to download updated program information, *e.g.*, the VBI of a television broadcast station.

These devices have been available competitively for an extended period without the need for governmental intervention. Technological innovation alone has assured that American consumers have the ability to choose among different combinations of these many devices in order to construct the system configuration that best serves their particular wants and needs within their budgetary constraints. The great majority of these devices are interoperable with one another, and fully portable. As such, Congressional intent to provide consumers with competitive choices in equipment in adopting Section 629 is already being served without the need for government intervention.

B. Entities Covered.

Section 629 of the Communications Act requires the Commission to adopt regulations assuring the commercial availability of navigation devices used to receive services from *all* MVPDs. Section 629 does not grant the Commission any authority to pick and choose from

^{28/}NPRM at ¶ 17.

among various types of MVPDs in applying the standards set pursuant to Section 629. In describing the goals underlying Section 629, Congress stated that:

Competition in the manufacturing and distribution of consumer devices has always led to innovation, lower prices and higher quality. Clearly, consumers will benefit from having more choices among *telecommunications subscription services arriving by various distribution sources*.^{29/}

The express statutory purpose of providing consumers with the benefits to be reaped from a competitive environment for video navigation devices and to ensure that consumers have choices among "telecommunications subscription services arriving by various distribution sources" would be undermined by exempting the equipment utilized to obtain multichannel video programming service from certain types of MVPDs but not others.

As the Commission recognizes, Section 629 of the Communications Act, by its own terms, concerns the commercial availability of navigation devices utilized to access video services delivered over "multichannel video programming systems."^{30/} The statutory language of Section 629 does not specifically list or limit the types of multichannel video programming systems to which the statutory section applies, and indeed, does not define the term "multichannel video programming systems" at all. However, Section 602(13) of the Communications Act defines "multichannel video programming distributor" as:

a person such as, but not limited to, a cable operator, a multichannel multipoint distribution service, a direct broadcast satellite service, or a television receive-only satellite program distributor, who makes available for purchase, by subscribers or customers, multiple channels of video programming.^{31/}

^{29/}H.R. Rep. No. 204, 104th Cong., 1st Sess. 112 (1995) (emphasis added).

^{30/}NPRM at ¶ 14.

^{31/}47 U.S.C. § 522(13).

"Multichannel video programming distributors" are, of course, the entities which operate and distribute the programming over the "multichannel video programming systems" to which Section 629 applies, and thus, are the entities to which Section 629 applies. The statutory MVPD definition contained in Section 602(13) of the Communications Act lists certain types of MVPDs as examples, but is clear that the list is not intended to be exhaustive. The litmus test for defining MVPD is "a person . . . who makes available for purchase, by subscribers or customers, multiple channels of video programming."^{32/} Section 629 thus encompasses a wide range of video distribution systems, *including, but not limited to*, cable television systems, high and medium power DBS and satellite service systems (C-band, Ku band FSS, and Ku band BSS), satellite master antenna systems, wireless cable systems (e.g., multichannel multipoint distribution service, instructional television fixed service, and local multipoint distribution service), multichannel digital television broadcast stations, and open video systems ("OVS").^{33/} All of these entities provide paying subscribers with "multiple channels of video programming," thus falling within the express statutory definition of a MVPD.

The Commission requests comment on its tentative conclusion that Section 629 does not apply to OVS operators.^{34/} The Commission reached this tentative conclusion because Section 653(c)(1) of the Communications Act provides that certain specific provisions of Title VI apply to OVS operators certified under Section 653(a) of the Communications Act, but does not list Section 629 as one of the statutory sections specifically applicable to OVS

^{32/}Id.

^{33/}NPRM at ¶ 14.

^{34/}Id. at ¶ 15.

operators.^{35/} Such an analysis is not at all compelling in light of how Congress has defined an MVPD. Moreover, this analysis ignores the fact that the regulations which the Commission is to adopt pursuant to Section 629 are aimed primarily at bestowing *on consumers* the benefits of a competitive market in the provision of video navigation devices. Accordingly, there is no basis whatsoever to exclude OVS operators and/or their programmers from regulations intended to benefit consumers by fostering a competitive market in the provision of such devices. Indeed, there is no reason to believe that OVS operators and programmers will not deploy navigation devices which are functionally indistinguishable from those deployed by cable operators.

Not only does the statutory purpose underlying Section 629 dictate universal applicability to all MVPDs, but regulatory parity also requires that all MVPDs be subject to the same ground rules governing the commercial availability of navigation devices and the subsidization of such equipment costs through programming service charges. Indeed, if certain MVPDs but not others were required to devote time and resources to comply with Section 629, then the truly competitive environment for video navigation devices which Congress intended to foster could not develop. Furthermore, as noted above, because Congress did not differentiate between the different types of MVPDs in enacting Section 629, it is now beyond the Commission's jurisdiction to impose different regulatory obligations under Section 629 upon different types of MVPDs.

^{35/} See 47 U.S.C. §§ 573(a), 573(c)(1).

IV. COMMERCIAL AVAILABILITY.

Section 629 requires the Commission to adopt regulations to assure that "navigation devices" as defined are made "commercially available."^{36/} Congress demonstrated an intent to have such devices be competitively offered to subscribers, and that in so doing, subscribers would be able to benefit from innovative uses of MVPD networks, increased equipment quality and lower prices.^{37/} Time Warner supports these goals, and believes that if equipment manufacturers and retailers can help maximize a subscriber's enjoyment of the services that Time Warner offers over its broadband networks, all affected parties will stand to benefit, especially consumers. However, Congress also recognized in Section 629(b) that equipment availability cannot be considered apart from the services which that equipment is designed to receive. If making equipment competitively available only aids signal pirates in stealing service from MVPDs, or allows unscrupulous or uncaring individuals to interfere with the use and/or enjoyment of the network by other subscribers, then Congressional intent will have been perverted to the detriment of all.^{38/}

^{36/}47 U.S.C. § 549(a).

^{37/}Conf. Rep. at 181.

^{38/}Unfortunately, many people in this country consider subscription MVPD service as something they should be entitled to either steal or enable others to steal, and there is a real risk that if MVPDs lose all control over who and what connects to their networks, such theft will not only become more common, it will threaten the success of the entire MVPD industry as well as harm the creative artists who produce the content distributed by the MVPDs. Accordingly, whatever standard of "commercial availability" the Commission adopts, it should be drafted in such a way to both maximize consumers' ability to enjoy and interact with broadband networks and guard against misuse of these networks.

A. Definition of Commercial Availability.

In its NPRM, the Commission seeks comment on the proper definition of "commercial availability" for purposes of Section 629, as well as the scope of the commercial availability requirement.^{39/} The Commission specifically requests comment regarding the degree of separation which must exist between the video service provider and the equipment manufacturers and retailers, as well as the extent to which the video service provider may retain control over the ability to influence the technology and manufacture of the products to be connected to its video distribution system.^{40/}

The heart of Congress' intent in adopting Section 629 was that consumers not be restricted to using just those navigation devices provided by their MVPD. The legislative history of Section 629 explains that Congress's intent was to 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."^{41/} Accordingly, as long as a subscriber can purchase or lease a compatible, FCC-authorized navigation device from an unaffiliated manufacturer, retailer, or vendor, such devices should be deemed commercially available. Any other test, such that equipment be available from a certain number of outlets, or that local consumer electronics retail stores must be licensed by the MVPD, not only would be beyond the scope of Congress' mandate, but would be unworkable and burdensome to implement and enforce. The Commission has neither the expertise nor the resources to

^{39/}NPRM at ¶ 20.

^{40/}Id.

^{41/}Conf. Rep. at 181.

determine whether in a particular community there is sufficient consumer demand to warrant a specified number of retail outlets.

Accordingly, Time Warner supports a definition of "commercial availability" of navigation devices which would: (1) establish a reasonable phase-in period allowing the MVPD offering equipment combining security and navigation functions to make available, upon request, a component device which provides security options; (2) facilitate the development of a digital interface, similar to the analog decoder interface, thus allowing navigation devices to be commercially available while retaining MVPD control over security devices; (3) prohibit MVPDs from interfering with a consumer's right to attach any authorized navigation device to the network so long as it does not harm the network and is not used or usable to facilitate unauthorized reception of service or copying of copyright material; and (4) prohibit MVPDs from taking any action to disable or restrict a consumer from using an authorized navigation device supplied by others to receive authorized service.

B. Preference for Marketplace Solutions.

Time Warner notes that Congress mandated that whatever rules the Commission adopts, the marketplace should ultimately determine the commercial availability of particular video equipment.^{42/} Accordingly, substantial flexibility should be used in determining whether the commercial availability test has been satisfied. The Commission should not involve itself in making judgments as to the most efficient way to market devices to consumers. Catalog and centralized warehouse distribution may be more cost effective from both a marketing and licensing standpoint than retail outlet distribution. Once an appropriate

^{42/}Id.

digital interface is developed, consumers will be free to use any commercially available, FCC-authorized digital navigation device with their cable service, or even purchase a "digital cable ready" TV set with integrated navigation features, while obtaining any requisite digital security decoder from their MVPD. Under such a structure, the marketplace will be free to respond to consumer demand for MVPD compatible video navigation devices and dictate the number of outlets in any particular community and most efficient marketing structure.

Furthermore, if consumers are to receive the maximum utility from being able to choose among different navigation devices, the Commission must recognize that not all such devices need be identical in terms of functionality, if for no other reason than to differentiate various manufacturers' products, so long as any equipment which is marketed as "cable ready" or designed for use with a particular MVPD service is capable of supporting the services offered over the MVPD system with which it will be used. This fact must be reflected in the test for determining commercial availability of navigation devices. Some devices may have more features than the basic converter box provided by the MVPD, while others may perform entirely different functions. Whatever the technical configuration and functionality of competitive equipment, it should be up to the consumer, and ultimately the marketplace, to decide which features best maximize consumers' use of the MVPD's services.^{43/} If the Commission gets involved in mandating which features must be available from competitive retailers on particular navigation devices, it will have created a regulatory

^{43/}This may be more relevant in the analog environment, with its large embedded base of incompatible equipment, than in the emerging digital environment. If the Commission assures that digital navigation devices incorporate a hardware platform sufficient to provide a downloadable and executable applications environment, there is far less likelihood that any such device will not be able to support and display most of the same functionalities and features supported by the MVPD supplied equipment.

mine field from which neither consumers nor equipment manufacturers will escape unscathed.

C. Integration of Navigation and Security Functions.

As explained above, the goals of Section 629 can be accomplished only if commercially available navigation devices are devoid of security functions, and separate component security modules are supplied by the MVPD. Nevertheless, because of the large embedded base of analog video navigation devices, as well as integrated navigation/security devices, the Commission should not prohibit MVPDs from continuing to offer integrated converter/descramblers. Consumers should not be forced to shoulder the burden of having the substantial investment in perfectly serviceable equipment made obsolete by regulatory fiat. As long as consumers have the *option* to purchase or lease component devices, there is no reason they should not also have the option to obtain an integrated device from their MVPD. Consumer electronics manufacturers themselves provide many forms of integrated products. Integration may be preferred by customers who are not technologically sophisticated or who may be cost conscious. For example, Time Warner understands that some television set manufacturers are planning to integrate WebTV^{44/} into their sets, and that certain manufactures either intend to integrate the "StarSight" on-screen program guide directly into some of their products or have already done so. Similarly, integrated TV/VCR devices are now readily available. Furthermore, the integration of various functions onto a single silicon chip will be a key factor in reducing the cost of producing advanced digital equipment and overcoming consumer resistance to the purchase of such equipment.

^{44/}WebTV allows Internet access through attachment to a television set for people who are not computer literate or who do not choose to purchase a separate computer.

D. Separation Between MVPDs and Retail Outlets.

The Commission recognizes signal security, network design, copyright and intellectual property concerns are implicated by the availability of video navigation devices from unaffiliated distributors.^{45/} The NPRM specifically asks: 1) what degree of separation it should require between an MVPD and the retailer marketing navigation devices compatible with that MVPD's network; 2) what degree of control the MVPD should be allowed to retain over the technology and manufacturing of such devices; and 3) whether the MVPD should be allowed to select and/or control the specific retailers and manufacturers marketing compatible navigation devices.^{46/} Signal security, network design, copyright and intellectual property concerns mandate that the FCC not prevent MVPDs from establishing specifications for navigation devices to be used in conjunction with their network. Once such criteria have been satisfied, however, the MVPD should be prohibited from dictating the price and features of navigation devices offered commercially by unaffiliated dealers.

Due to the differing technologies utilized by different categories of MVPDs, and varying network topologies employed and services offered by MVPDs even within the same category, any MVPD should be entitled to employ expedited FCC procedures to seek decertification of any commercially available navigation devices shown to have caused harm to the network.^{47/} Furthermore, the consumer's ability to purchase a wide range of

^{45/}See NPRM at ¶¶ 56-62, 69-70.

^{46/}NPRM at ¶ 20.

^{47/}In this regard, the Commission should retain its part 15 standards for all MVPD navigation devices and, as detailed in Section VI of these comments, expand those regulations to establish requirements for digital devices marketed as cable ready that will: (1)
(continued...)

navigation devices at retail would be enhanced through a Commission rule which: (1) prohibits MVPDs from interfering with a consumer's right to attach any authorized navigation device so long as it does not harm the network and is not used or usable to facilitate the unauthorized reception of service or unauthorized copying of copyrighted material; and (2) prohibits MVPDs from taking any action to disable or restrict consumers from using authorized navigation devices supplied by others in an authorized manner. As long as unaffiliated outlets are free to market FCC-authorized navigation devices functionally comparable to those offered for lease by the MVPD and the MVPD so that the MVPD cannot exercise control over the pricing and features of the device, the statutory balance between commercial availability and signal security will be appropriately maintained.

V. PORTABILITY AND INTEROPERABILITY.

The Commission correctly recognizes that improvements in equipment portability and interoperability may facilitate, and may indeed be necessary for the development of a competitive retail market for navigation equipment. When consumers have the ability to use navigation equipment they purchase with whichever MVPD system they choose, and regardless of where in the country they currently reside or move to in the future, they are more likely to invest in the purchase of such equipment, and manufacturers are more likely to develop and supply such equipment. Accordingly, the NPRM requests comments as to whether and to what extent the Commission should adopt technical standards governing the

⁴⁷(...continued)

allow the MVPD or its designee to control all security functions; (2) provide protection against unauthorized copying; and (3) provide a hardware transparent applications environment that will support the ancillary services and program related material provided by the MVPD and others.

portability and interoperability of navigation equipment, and as to whether such standards would help facilitate a competitive marketplace for navigation devices.^{48/}

Time Warner fully supports industry efforts to improve video equipment portability and interoperability. Such efforts are likely to be fueled by marketplace demands, and will enure to the benefit of MVPDs, equipment manufacturers and retailers, as well as consumers. For example, as broadcasters begin to roll out DTV, not all consumers will be willing to rush out and purchase digital TVs overnight. Rather, consumers will demand DTV digital to analog conversion devices, so they can view on their existing analog TV sets any new services offered over broadcasters' DTV frequencies. At the same time, cable operators will undoubtedly continue to deploy digital boxes which will deliver a broader array of services to cable subscribers digitally and convert such transmissions for analog display. If consumers could purchase a single interoperable digital box to perform both functions, all affected parties would benefit.^{49/} Accordingly, the Commission should facilitate ongoing industry efforts to develop a basic architecture for digital navigation devices that alleviates MVPD security and copyright concerns, provides a minimum degree of open ended functionality and compatibility in all commercially available navigation devices, and thereby facilitates a robust market for such devices. However, nothing in Section 629 or elsewhere in the Communications Act gives the Commission authority to mandate the portability or interoperability of any video equipment.

^{48/}NPRM at ¶ 24.

^{49/}Indeed, efforts toward this goal have already begun. See "Cable Labs to Tangle with Broadcasters," Multichannel News (May 12, 1997) at 1.

A. Distinction Between Analog and Digital Equipment

In attempting to promote portability and interoperability, the Commission must distinguish between analog and digital video navigation devices. There is already a large embedded base of proprietary and incompatible analog navigation devices currently in use by various MVPDs. While many such devices are neither portable nor interoperable, they are nonetheless completely functional and serviceable and there is simply no justification to require that such devices be replaced prior to the end of their useful life. A similar degree of deployment does not yet exist in the digital environment, thereby presenting a more promising opportunity to achieve a greater degree of portability and interoperability than will be possible with analog distribution technologies.

Analog scrambling and digital encryption also pose very different security concerns. The Commission has expressly recognized that the potential threat to signal security posed by the commercial availability of navigation devices is significantly greater with respect to analog equipment than for digital equipment due to the inherently coded nature of digital transmission.^{50/} In the analog world, strict control of descrambling equipment, and the limited availability of that equipment, is often a central requirement to ensure that security is not compromised.^{51/} For these reasons, the prospects for maximizing portability and interoperability are much better for digital than for analog navigation devices.^{52/}

^{50/}NPRM at ¶ 24.

^{51/}Id.

^{52/}Despite these drawbacks, the industry has already taken significant steps to foster the commercial availability of analog equipment on a going forward basis. The cable and consumer electronics industry, through the C3AG group of the NCTA/EIA Joint Engineering
(continued...)

Equipment portability and compatibility of navigation devices may well play an important role in the development of widespread retail availability of digital navigation equipment. The development of a common basic digital navigation platform are a prerequisite for advancing such goals. Such criteria must be robust enough to support various MVPD services as well as third-party ancillary services delivered on a competitive basis, and must be adaptable in the digital context without compromising MVPD network security and intellectual property concerns. Digital navigation devices which are compatible across the broad range of MVPD platforms will not only be pro-consumer, but also will create new marketing and service opportunities for all MVPDs, and in the long run facilitate competition between MVPD services and delivery technologies. The Commission's energy in this proceeding is best channeled towards facilitating the inter-industry development of such digital navigation device specifications.

^{52/}(...continued)

Committee, has already developed an analog decoder interface specification that will allow security functions to be segregated from non-security functions in cable compatible equipment. See C3AG Compromise Summary, *supra*. This interface also supports a rich command set flowing from the consumer electronics equipment to the decoder module which allows the decoder interface to support the applications and services offered by the MVPD. This work has opened the door for manufacturing commercially available analog navigation devices that will be both portable and compatible. Subscribers will be able to take equipment equipped with this interface and use it with any cable system that offers to provide the component security module. Time Warner has participated in and supports the efforts of the C3AG to facilitate compatibility, portability and interoperability for analog equipment. Should the Commission adopt the C3AG recommendations, Time Warner will commit to making available the component security module to all subscribers of scrambled analog services who purchase consumer electronics equipment equipped with the decoder interface.

B. Development of Digital Architecture to Promote Portability and Interoperability.

The Commission should strive to facilitate the development of portable and interoperable navigation devices by encouraging cooperation among the affected industries. Congress gave every indication that where such a solution can be established from within the industry, the Commission is to step aside. Nowhere does Section 629 require or even authorize the Commission to unilaterally impose portability and/or interoperability requirements upon devices utilized to receive multichannel video programming and other services offered by MVPDs. Rather, the statute expressly directs the Commission to adopt regulations “*in consultation with appropriate industry standard-setting organizations. . . .*”^{53/} Interoperability and portability requirements that are not driven by legitimate consumer demand in the marketplace solutions will also unduly stifle further innovation and the development of new services provided by local MVPDs, such as cable television.

The Commission simply cannot ignore the fact that different cable systems operating in different environments utilize different bandwidth, security technologies, system architectures and offer widely varying services and service packages. In determining which technology to employ to offer newly emerging services, such as broadband data transmission and Internet access, the MVPD’s choices will be dictated by such considerations as the age and current bandwidth of its existing distribution system, demographic and regulatory requirements, and budgetary considerations, just to name a few. If the Commission attempts to mandate on its own a comprehensive, uniform solution to such difficult questions as how

^{53/}47 U.S.C. § 549 (a) (emphasis added).

new services will be introduced, it runs a substantial risk that the technological lowest common denominator will preclude innovation.

Premature government standards-setting in the digital environment carries with it the potential to unnecessarily raise subscriber costs and stifle innovation. Any governmentally mandated universal digital configuration standard would require at least some customers to purchase capabilities that they may not need, imposing an unnecessary costs, especially for those with limited budgets. Furthermore, there is simply no way for any governmentally imposed standard to predict or efficiently respond to the evolving deployment of digital technologies.^{54/} The best approach for the Commission to encourage the industry participants to develop solutions in response to consumer feedback as the shift to digital transmission and technology plays out and intervene only when necessary to ensure continued progress in achieving the statutory goals embodied in Section 629.

The legislative history accompanying Section 629 clearly reflects a Congressional desire to allow marketplace developments to facilitate commercial availability of navigation devices:

In prescribing regulations to ensure the commercial availability of such equipment to consumers, the Commission is directed to consult with private standard-setting organizations, such as IEEE, DAVIC (Digital Audio Video Council), MPEG, ANSI and other appropriate bodies. The conferees intend

^{54/}A perfect example of this arose in the context of the Commission's Advanced Television rulemaking. In the interest of arriving at a standard for digital broadcast television, the Commission chose the VSB modulation scheme advanced by the broadcast industry even though the QAM modulation scheme which is in use internationally and in cable systems throughout the United States offers a far more efficient use of bandwidth. A similar problem was narrowly avoided by the last minute agreement to incorporate both progressive and interlaced scanning into the DTV standard.

that the Commission avoid actions which could have the effect of freezing or chilling the development of new technologies and services.^{55/}

The colloquy between Senators Faircloth and Burns during the Senate debate on the Conference Agreement provides even further clarification as to the proper limited role of the Commission in setting standards for navigation devices:

Mr. FAIRCLOTH. The competitive availability of navigation devices provision, section 304, instructs the FCC to consult with appropriate voluntary industry standards setting organizations for the purpose of promulgating a regulation. Given that the FCC is not a standards setting organization, do you agree that this legislation does not authorize the FCC to set a standard for interactive video equipment?

Mr. BURNS. I agree. Moreover, FCC involvement in the emerging digital market could have the effect of freezing or chilling development of that market. If private industry groups are able to develop sufficient standards on their own, there is no need for the FCC to intervene. One such example of this policy approach is the so-called Eshoo amendment which leaves the development of 'features, functions, protocols, and other product and service options' for analog cable equipment to the private sector.^{56/}

There are natural incentives within the industry to develop a common basic architecture which promotes the development of competitive availability of digital navigation devices, as evidenced by the many private sector initiatives which have already taken place.^{57/} The Commission's proper role is to ensure that these initiatives are allowed to come to fruition.

^{55/}Conf. Rep. at 181.

^{56/}142 Cong. Rec. S700 (Feb. 1, 1996).

^{57/}Recent examples of inter-industry cooperation in the development of specifications that will facilitate interoperability of cable modems and of a core digital encryption methodology are good indicators that the affected industries are able to accommodate their differences and work for the common good without the need for government intervention. See, "MCNS Agreement Could Lead to Cheaper Modems in Early 1998," Multichannel News (March 24, 1997) at 77; "Ops, Vendors Close in on Encryption Standard," Multichannel News (March 31, 1997) at 43.

VI. PREREQUISITES FOR "CABLE READY" DIGITAL NAVIGATION DEVICES.

There are certain basic prerequisites for any digital navigation devices that are intended to be marketed commercially for use with cable television systems. First, security functions must be removable and replaceable in the event the event that security is compromised. Second, the equipment must be designed to ensure that copy protection mechanisms cannot be bypassed or defeated. Third, the equipment must contain a sufficiently robust hardware platform to support the downloading and execution of various applications, such as program guides, on screen displays, and impulse pay per view that may differ among MVPDs or be provided by multiple vendors over a single MVPD.^{58/}

Time Warner stresses that it is not recommending that the Commission require all commercially available navigation devices to be compatible with all MVPD systems, or that all such devices contain components to fully interact with all MVPD transmission technologies. The widely varying transmission characteristics, bandwidth requirements, system architectures and modulation schemes employed by different categories of MVPDs, and even within a single category of MVPDs, would make such an approach unduly expensive. Despite the theoretical attractiveness of such a "one box fits all" solution to equipment portability and interoperability, such an approach would require subscribers to purchase more expensive equipment containing features which they will never use.

^{58/}Interindustry groups have made substantial progress on these and other important issues. Time Warner and its affiliates have been actively involved in the efforts of the C3AG to implement the equipment compatibility provisions contained in Section 624A of the Communications Act with respect to both analog and digital equipment; the NCTA/EIA Joint Engineering Committee Security Working Group to develop a National Renewable Security System; and the Copyright Protection Technical Working Group formed by the motion picture and consumer electronics industries to develop an effective system to prevent the unauthorized copying of copyrighted digital and analog material.

Furthermore, there is a significant risk that the continuing technical innovation of such devices could be limited by the lowest common denominator among the different MVPD technologies.^{59/}

Instead, the Commission should encourage the development of a basic digital navigation device architecture that maximizes the adaptability of such devices, and which allows consumers to maximize the functionality of the device and their MVPD services. The Commission and the industry can cooperatively develop specifications for "cable ready" digital navigation devices much like it did for analog equipment, which contains a minimum degree of hardware dependency and which allows applications to be downloaded over the MVPD network into the device for execution. These applications could be provided either by the MVPD or third party vendors. Such specifications should be based on the following three prerequisite characteristics.

First, any commercially available digital navigation devices that are to be marketed as cable ready must accommodate the complete separation of network security functions from navigation functions. Any portions of the equipment used for addressability or descrambling, including any security processor, decoder, network interface module, interdiction device or other component used for conditional access must be structurally separated from the competitively offered video navigation device. Any MVPD should have the option of offering any security and addressability components via a separate device which remains in the exclusive control of the MVPD, and which could either plug into the competitively

^{59/}Time Warner does not oppose the development of a universal navigation device if the marketplace can justify it, only a requirement that all navigation devices be portable and interoperable.

offered navigation device, or operate as a completely stand-alone unit. All other functional components could thereby be supported within the competitively provided navigation device of the subscriber's choice. Time Warner considers the NRSS B proposal, which separates conditional access functions and the decryption circuitry from the navigation and other functions of the underlying equipment, to be a good start, but recognizes that the affected industries must further work together in order ensure that all network security functions remain under the exclusive control of the MVPD.

Second, any cable ready digital navigation device must include an interface similar to that adopted for Digital Video Disks ("DVDs") that ensures that encrypted digital programming is not delivered in an unencrypted form at the output of the device, which would allow the customer to make perfect unauthorized digital copies of copyrighted intellectual property using a simple home computer. Producers of intellectual property, including the motion picture, television, and recorded music production affiliates of Time Warner, must be assured that their intellectual property will not be compromised by any commercially available digital video navigation device. The NRSS B proposal, as it now stands, is insufficient in this regard because it allows a technically savvy subscriber to tap into an unencrypted digital signal and transport stream at the NRSS module connector. Some sort of end to end encryption scheme must be developed by the industry which can act as an interface between the decoder module and final display circuitry. The MVPD and consumer electronics industries must be encouraged to further work together, in consultation with the holders of intellectual property rights, to produce an acceptable level of protection in this regard.

Third, any cable ready digital navigation device should establish a common integrated hardware platform that would allow functional applications which complement traditional MVPD offerings to be downloaded and executed directly. Once network security components have been removed from the navigation device, what remains are a number of other functions which are necessary for these devices to interface properly with MVPD distribution systems and support the services offered by a particular MVPD such as tuning, demultiplexing, demodulation, decompression, program guides and other on screen display support, and the ability to support impulse pay per view ordering and program delivery. A hardware transparent applications environment which can be accessed and addressed by the MVPD service provider should be part of every commercially available navigation device. The minimum architectural requirements for such a platform could easily be specified. Such standardization would allow a variety of functions to be integrated using a single microchip processor.

The benefits of such a common architecture are enormous. It would ensure that all navigation devices at least contain a minimum common degree of functionality. Such commonality would allow a number of functions to be integrated onto a single silicon chip, resulting in economies of scale that would be expected to quickly bring down the cost of navigation equipment. Expanded features requiring additional hardware components, such as the ability to use more than one MVPD service simultaneously, or additional memory to support interactive services, could easily be included as optional features in premium navigation devices without sacrificing the common minimal functionality of all navigation devices.

A common architecture supporting a hardware transparent addressable applications environment must be flexible enough to support a multiplicity of applications, both present and future, obtained from a variety of sources. This would be greatly facilitated through the use of a common executable programming language, such as HTML, compatible across different operating systems. Indeed, a standardized client-server based HTML engine integrated within all digital navigation devices would greatly enhance interoperability and portability of these devices, as well as harmonize the world of the personal computer with the world of the television. HTML is the most universal applications language in that almost any operating system can be adapted to run applications using HTML. Use of this language could provide access to the Internet for families that otherwise can not afford a PC. Furthermore, consumers are already generally familiar with the user interface utilized by HTML, as it is the standard on the World Wide Web.

VII. SUBSIDIZATION OF HARDWARE BY PROGRAMMING SERVICE FEES.

Under Section 629(a), the Commission is instructed not to restrict MVPDs from offering navigation equipment directly to consumers as long as the MVPDs' "charges to consumers for such devices and equipment are separately stated and not subsidized by charges for any such service."^{60/} The NPRM asks which MVPD practices should be a matter of concern in this regard, and which MVPDs should be covered by any regulations adopted to prohibit such subsidization.^{61/}

^{60/}47 U.S.C. § 549(a).

^{61/}NPRM at ¶ 37.