

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION

WASHINGTON, D.C. 20554

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In the Matter of)
)
Implementation of Section 304 of)
the Telecommunications Act of 1996)
)
Commercial Availability of)
Navigation Devices)

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY
CS Docket No. 97-80

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COMMENTS OF GENERAL INSTRUMENT CORPORATION

General Instrument Corporation ("GI"), by its attorneys,
hereby files its comments on the Notice of Proposed Rulemaking in
the above-captioned proceeding.¹

¹ In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, CS Docket No. 97-80, FCC 97-53, released February 20, 1997 ("Notice"). There are several reasons why these comments are so extensive: (1) As the Notice recognizes, the issues raised by Section 629 are numerous and complex; (2) These issues have not previously been explored in sufficient depth, the Congress having acted without the benefit of hearings and only in Conference after the Senate had overwhelmingly rejected a similar provision; and (3) A meaningful retail distribution model is possible only as a result of the development of technologies in which GI has played a major role; that experience in the design and operation of the networks upon which any such program must rely provides GI with a unique perspective and information which may not be readily available to other parties to this proceeding.

I. DESCRIPTION OF GI

GI is a leading world supplier of systems and components for high-performance networks delivering video, voice, and Internet/data services to the cable, MMDS,² telephony, and satellite markets. GI is dedicated to deploying leading-edge technology through intensive research and development; high-quality, low-cost manufacturing; and superior customer service and support.

In 1991, GI was the first company to demonstrate digital compression technology for the cable industry. Since that time, GI has become a leader in the telecommunications industry's efforts to implement digital technology. GI offers complete digital compression and transmission systems across all industry segments -- from the equipment that encodes and transmits the signal up to the satellite, to the intelligent set-top terminal in the consumer's home, and everything in between. GI has already shipped 200,000 digital consumer terminals and has contracts for several million more. GI is currently supplying digital video compression equipment to the satellite programming industry, and is a leading manufacturer and supplier of encryption equipment for the home satellite television market.

GI's leadership in digital technology dates back to June 1990, when its breakthrough work in the area of high definition

² "MMDS" means "multichannel multipoint distribution service," sometimes referred to as "wireless cable."

television led to the announcement of the world's first all-digital HDTV system, thereby dramatically thrusting the United States into world leadership in advanced television. During 1991 and 1992, two of the four all-digital HDTV systems tested by the FCC's Advisory Committee on Advanced Television Service ("ACATS") were developed by GI. In May, 1993, GI joined with the other all-digital proponents in the Digital HDTV Grand Alliance to build the unified digital broadcasting system which the Commission just recently endorsed as an industry standard.

GI is an active participant in several industry standards-setting organizations, including the Society of Cable Telecommunications Engineers ("SCTE"), CableLabs, and MPEG LA, LLC (an entity formed to offer licenses of MPEG-2 essential patents to all interested companies on a reasonable, non-discriminatory basis). GI has also been a principal contributor to the efforts of the Digital Audio-Visual Council ("DAVIC").³

³ On January 7, 1997, GI announced that it will undertake a strategic restructuring plan to divide GI into three separate public companies. NextLevel Systems, Inc., will focus exclusively on the provision of broadband networks, encompassing GI's high-growth cable television, satellite television, telephony, and data networking businesses. NextLevel Systems, Inc. will be composed of GI's current Broadband Networks Group, based in Hatboro, Pennsylvania; the Satellite Data Networks Group, headquartered in San Diego, California; and GI's Next Level Communications subsidiary, based in Rohnert Park, California. GI's current coaxial cable and power semiconductor businesses will become CommScope, Inc., and General Semiconductor, Inc., respectively.

II. INTRODUCTION AND SUMMARY

Overview

In this proceeding, the Commission will implement new Section 629 of the Communications Act, added by the 1996 Act. While most commenters would agree that the purpose of this provision is to increase consumers' options for obtaining MVPD "navigation devices,"⁴ Congress provided little clarity or direction as to how the Commission is to accomplish this objective. On the other hand, the statute and its legislative history are quite clear with respect to limitations placed on the Commission's authority, specifically in the areas of security and network innovation.

In light of this legislative backdrop and consistent with marketplace developments described below, these comments reflect two overarching principles:

1. The Commission must avoid crafting an intrusive regulatory scheme that would micromanage this important area of economic activity. As noted, the statute itself places limits on the Commission's ability to do so. Sound public policy militates against it as well. Finally, growing marketplace momentum toward new models of distribution, including retail, renders it unnecessary.
2. At the same time, there are constructive steps which the Commission can take which will fulfill its statutory obligations and, importantly, accommodate and

⁴ The title of Section 629 uses the term "navigation devices" to mean equipment used to access services provided by multichannel video programming distributors ("MVPDs").

even accelerate those marketplace forces that are making new forms of equipment distribution possible.

Applying these two overarching principles, GI has proposed a regulatory approach which uses performance rules and incentive mechanisms to assure commercial availability (the "PRIME" approach, which is described in Section V, infra). GI believes that the PRIME approach offers a number of significant benefits and should be adopted by the Commission for the following reasons:

- It will increase consumers' options for obtaining navigation equipment from third parties, while maintaining operators' flexibility to innovate and protect their networks from harm;
- It fosters and makes use of marketplace developments that are increasing the likelihood of open systems and retail competition;
- It is flexible and adaptive to rapidly changing marketplace conditions;
- It avoids the need for the Commission to pick technology winners or to mandate technical standards, which could stifle innovation;
- It permits marketplace experimentation to determine the most efficient method of retail distribution for various MVPD navigation devices; and
- It avoids placing the Commission in the difficult (and legally untenable) position of making decisions about the method of security to be used by network providers to assure commercial availability.

Marketplace Developments

A retail market is already flourishing with respect to certain MVPD navigation devices covered by new Section 629 of the

Communications Act and an unrelenting momentum is driving other covered MVPD equipment toward retail distribution. This momentum has been ignited by the following principal marketplace developments:

1. **The Conversion to Digital.** The introduction of digital technology has made a retail distribution model a real possibility for cable and other MVPDs by enhancing system security and providing a new opportunity to increase the level of equipment and network standardization.
2. **MVPD Desire to Reduce Capital Costs.** As competition has increased, cable operators and other MVPDs have continually sought ways to reduce the capital costs associated with the purchase of customer equipment, so they may focus their investment on network upgrades and the introduction of innovative services. Consumer purchase of navigation devices at retail is one significant way to achieve this cost reduction.⁵
3. **Competition By DBS.** DBS has popularized retail distribution of MVPD navigation devices. Other MVPDs are looking to retail distribution as an additional way to compete with DBS.
4. **Emergence of Alternative Consumer Distribution Channels.** Consumers are purchasing products through television (e.g., home shopping) and through the Internet (e.g., online catalogs) on an increasing basis. The tremendous success of the PC mail order business is a good example of this phenomenon. The growth of these direct distribution channels has sparked the interest of MVPDs and their equipment suppliers who see in them a potential vehicle to increase deployment of MVPD customer equipment while minimizing security risks.

As a result of these marketplace developments, the cable and other MVPD industries have witnessed significant increases in the

⁵ Some advocates of Section 629 advanced the notion that legislation in this area was required to overcome cable operators' desire to maintain a monopoly over the supply of customer equipment. Nothing could be farther from the marketplace reality.

level of voluntary standard-setting efforts and licensing. For example, the cable industry has developed a set of specifications for carrying compressed digital video and associated audio and data, thereby providing a common basis for interoperability of consumer terminals from different manufacturers. Similar cooperation led to several recent announcements regarding an industry agreement on cable modem interoperability standards. At the same time, GI has actively licensed its proprietary technology to third parties, including some of its principal competitors. Moreover, GI and Scientific Atlanta are currently working towards a cross-licensing arrangement that would ensure interoperability between their digital systems.

Importantly, all of this industry activity has occurred without governmental directives or intervention. In short, marketplace forces and industry efforts are already at work to meet the commercial availability objectives of Section 629. In fact, GI is concerned that the primary potential roadblock to the continued success of these marketplace developments is preemptive action or overregulation by government. This is especially true given the highly complex and dynamic nature of the MVPD industry. In such an environment, there is a particularly high risk that regulation will adversely impact the public interest and undermine congressional goals.

Fortunately, Congress recognized the potential harm government regulation could produce in this area. As a result, it established two important limitations in Section 629 -- protection of system security and protection of network innovation. Congress was

unmistakably clear that the Commission is not authorized to adopt regulations -- even if they would assure commercial availability -- if such regulations also would jeopardize system security⁶ or impede network innovation.⁷

Despite the constraints placed on the Commission by these "trump" provisions of Section 629, GI believes that there are constructive actions which the Commission can take in this proceeding -- actions which will allow it to wend its way past the limitations imposed by the statute and which will reinforce the marketplace trends toward increased retail distribution described above.

The "PRIME" Approach

Specifically, GI recommends that the Commission adopt a flexible and incremental regulatory approach, which relies on a combination of performance rules and regulatory incentives to assure the commercial availability of MVPD navigation devices. Under GI's recommended "Performance-Rule-Incentive MEchanism" -- "PRIME" -- approach, the Commission would:

⁶ See 47 U.S.C. § 549(b) ("The Commission shall not prescribe regulations ... which would jeopardize security") (emphasis added).

⁷ See S. Conf. Rep. 230, 104th Cong., 2d Sess. 181 (1996) ("Conference Report") ("[T]he Commission [should] avoid actions which could have the effect of freezing or chilling the development of new technologies and services."). The waiver provision in Section 629(c) is also intended to avoid regulations which impede innovation.

1. **Define "Commercial Availability."** Adopt a definition of "commercial availability" based on the availability of a piece of equipment that is compatible with a particular MVPD's system from one or more unaffiliated vendors.
2. **Establish a Performance Rule That Allows MVPDs to Meet the Definition Using Any One of a Number of Options.** Adopt a performance rule that permits MVPDs to select from among a number of means to achieve "commercial availability," including, but not limited to:
 - (1) separation of security and non-security components, with the non-security components available at retail; or
 - (2) the provision of integrated devices (even those that may include a security component) at retail. In either case, direct distribution of the equipment through a telephone-based or online-based mail order system constitutes commercial availability under the statute.
3. **Phase In the Rules Over Time.** Phase in the rules over time in order to minimize any adverse effects on the highly dynamic MVPD industry and to allow the Commission to apply the lessons learned in earlier phases of the implementation to later phases. In the initial phase, the Commission should apply the performance rule with respect to cable modems, given the fairly advanced development of industry standards in the cable modem area and the fact that a significant embedded base does not yet exist.
4. **Establish Regulatory Incentives to Encourage Voluntary Compliance with the Commercial Availability Standard.** Provide incentives for MVPDs to achieve commercial availability for other covered equipment during the phase-in period, such as deregulating the rates for any equipment that is commercially available under the Commission's definition.
5. **Evaluate the Results of the Previous Implementation Phase and Determine Next Steps.** After the initial application of the performance rule, the Commission would reevaluate the results and determine whether and to what extent further regulatory action is required to assure commercial availability.

Such a flexible, incremental approach would help to accelerate the evolution of new MVPD retail distribution channels while also accommodating the marketplace momentum that is already driving inexorably toward this goal. Equally important, because this approach permits the commercial entities involved to determine for

themselves the best means to comply with Commission-established performance rules, it is consistent with the statutory bar against actions which would jeopardize or impede security and the congressional goal to encourage innovation.

Other Issues

In addition, GI recommends that the Commission adopt the following approaches with respect to the other specific issues raised in the Notice:

MVPD CONTROL OVER THEIR NETWORKS

- MVPDs must retain control over their networks (this includes not only security, but other functions as well).
- The Commission should avoid mandating any particular model for system security, including the separation of security and non-security functions.

DEFINITION OF "AFFILIATE"

- GI supports the Commission's proposal to define an MVPD "affiliate" for purposes of Section 629 using the Section 3 definition in the 1996 Act.
- Unless there is a 10% equity (or equivalent) ownership interest involved, the Commission cannot conclude that an "affiliate" relationship exists solely on the basis of a patent licensing agreement or any other contractual arrangement, absent a clear demonstration that an MVPD has acquired de facto control of the relevant vendor's business.

PORTABILITY/INTEROPERABILITY

- Nothing in Section 629 or its legislative history requires portability and/or interoperability of MVPD navigation devices.
- Given the potentially innovation-stifling effects of government-mandated standards and the fact that cable operators and other MVPDs are already moving (where economically feasible and pro-consumer) to a more

portable/interoperable environment through industry-developed standards, the Commission need not and should not impose any type of portability/interoperability requirement.

EQUIPMENT AND MVPDS TO WHICH THE RULES SHOULD NOT APPLY

- Analog Security Devices. Navigation devices using analog security are exempt from Section 629. The Commission's previous decisions with respect to analog converters in the Equipment Compatibility proceeding constitute "prior determinations," which according to Section 629(d)(1) "fulfill the requirement of this section." Moreover, it makes little sense for the Commission to undertake the complex task of establishing rules for analog devices when, in fact, they will be increasingly supplanted as a result of the deployment of digital technology by all MVPDs.
- DBS and C-Band Providers. The Commission should not apply its commercial availability requirements to DBS and C-Band providers, since the MVPD navigation devices they provide already satisfy the commercial availability standard.
- Residential Gateways and Network Interface Modules. Residential gateways and network interface modules ("NIMs") are not covered by Section 629, because they are part of the MVPD's network distribution plant. Moreover, even assuming they are within the scope of Section 629, the Commission should forbear from applying commercial availability requirements to this broadband, multi-function equipment. Application of the rules to such equipment would stifle the development of advanced telecommunications capability, contrary to express congressional directives in the 1996 Act.
- OVS Operators/Packagers. OVS operators and OVS packagers are exempted from the commercial availability requirements by the plain language of the statute. However, the regulatory disparity created by this exemption provides an additional basis for a flexible regulatory approach with respect to cable operators and other covered MVPDs.

CONSUMER RIGHT TO ATTACH

- GI supports a consumer right to attach equipment obtained from retail outlets, provided the equipment

does not adversely affect the network and is privately beneficial without being publicly detrimental.

- However, to minimize theft of service and other network harm, MVPDs must be permitted to establish and enforce their own standards (subject to Commission oversight) as to what may be attached to their systems. Commission precedent regarding the attachment of telephone equipment in a party line context supports the use of this approach in the MVPD context.

SUBSIDY/BUNDLING PROVISION

- The subsidy and bundling prohibitions do not apply to any MVPD whose rates are not rate regulated.
- The Commission's existing rate rules satisfy the subsidy and unbundling requirements in Section 629(a) with respect to regulated cable operators, and thus no further action is required.
- Nothing in Section 629(a) precludes a regulated cable operator from offering navigation devices below cost, as long as such below-cost equipment pricing is not offset by an increase in the price of regulated service. Absent an improper cross subsidy, such lower-cost equipment offerings benefit consumers and could increase the level of MVPD competition.

WAIVERS

- GI agrees with the Commission's tentative conclusion that waiver requests should be viewed "sympathetically and expansively." Such an approach is required to implement Congress' intent to avoid any unnecessary obstacles to innovation.
- A flexible, ad hoc waiver approach is required to accommodate the various potential equipment/service scenarios involved.
- Waiver requests which are not acted upon within the statutory 90-day review period should automatically be deemed approved.

SUNSET

- GI supports the Commission's tentative conclusion that the sunset provision should be read "as flexibly as possible." Particularly given the highly dynamic nature

of the MVPD marketplace, a flexible approach which seeks to avoid unnecessary regulation is entirely appropriate.

- Since the sunset criteria of Section 629(e) are already satisfied in the case of the DBS and C-Band markets, the commercial availability rules do not apply to DBS or C-Band operators or to the navigation devices they provide.
- The Commission should sunset the commercial availability requirements with respect to an individual cable system that becomes subject to effective competition and with respect to all cable systems nationwide if and when DBS attains a national penetration level of 10%.

UNAUTHORIZED RECEPTION OF SERVICE

- GI fully supports the Commission's commitment to refrain from taking any action which could "inadvertently validate the manufacture and distribution of equipment intended for the unauthorized reception of communications services." Toward this end, GI proposes the adoption of several rules to clarify restrictions on theft of service.

PROPRIETARY TECHNOLOGIES

- The issue of compulsory licensing of proprietary technologies is not germane to this proceeding. Section 629 focuses on creating alternative sources of distribution to the MVPD in providing equipment to consumers. While compulsory licensing of other manufacturers may be sought by some under the guise of facilitating or increasing commercial availability, it is not necessary to implement congressional intent under Section 629.
- In any event, any attempt to impose a compulsory license requirement would raise serious constitutional issues and would exceed the scope of the Commission's authority under the Communications Act.
- Even assuming that licensing of proprietary technology were required to satisfy Section 629's commercial availability standard, such licensing is already occurring voluntarily. Given the open licensing practices of GI and others, it is at best premature to conclude that there is any "conflict" between the patent rights of GI and other private parties and the

provisions of Section 629 that necessitate extraordinary governmental intervention of this nature.

Expert Appendices

Finally, to assist the Commission in its decisionmaking process, GI attaches the following expert appendices on various topics:

- **Economic Issues.** Appendix A is an economic analysis by Stanley M. Besen and John M. Gale of Charles River Associates, Inc. addressing various issues raised in the Notice, including portability/interoperability, standard setting, below-cost equipment pricing, compulsory licensing, and sunset.
- **Security.** Appendix B is a primer on analog and digital security technologies.
- **Open Standards/Licensing.** Appendix C is an overview of GI's use of open standards and licensing of its proprietary technology in its digital video product line.
- **Smart Cards.** Appendix D is a white paper discussing the technical problems with smart card security and the superiority of embedded and hybrid security systems.
- **Interoperability.** Appendix E is a technical paper discussing how the "System Information for Digital Television" standard ("A/56"), developed in the context of the digital broadcasting standards process, can be used to facilitate interoperability with cable systems.
- **Network Harm.** Appendix F is a technical paper describing the channel characteristics of the cable return path and how to reduce signal ingress.

GI hopes that these papers prove useful to the Commission as it works its way through the highly complex issues raised by Section 629. GI stands ready to assist the Commission in any way it can in the implementation of commercial availability requirements for MVPD navigation devices.

III. THE COMMERCIAL AVAILABILITY STANDARD

A. Overview

The only way to assure commercial availability under Section 629 consistent with the security and network innovation constraints placed on the Commission is:

- to properly define "commercial availability;" and
- then apply a flexible and incremental regulatory model, such as the "PRIME" approach, which will allow MVPDs to satisfy this definition using any of a number of distribution models.

GI discusses each of these elements below.

B. Definition of "Commercial Availability"

GI proposes that the Commission adopt the following definition of "commercial availability:"

the availability to consumers of navigation devices compatible with a particular MVPD's network from a retailer, manufacturer, or other vendor that is unaffiliated with such MVPD, provided that consumers are reasonably aware of the third-party availability of such equipment and may obtain such equipment with a reasonable amount of effort and expense.

There are three principal components to GI's proposed definition: (1) consumers have a choice to obtain equipment from an entity unaffiliated with the network operator; (2) consumers are reasonably aware of this retail option; and (3) consumers can take advantage of this option through the expenditure of reasonable effort and expense.

(1) Consumers Have A Choice to Obtain Compatible Equipment From an Entity Unaffiliated with the MVPD. The primary congressional concern in adopting Section 629 was to provide

consumers with the option of obtaining compatible MVPD equipment from a source other than the MVPD. As Congress stated, Section 629 is intended 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."⁸ GI's proposed definition of "commercial availability" satisfies this overriding congressional objective by assuring that consumers have at least one independent source from which to obtain MVPD navigation devices.

GI's proposed definition is also consistent with the traditional use of the term "commercial availability" by Congress and the federal courts to mean availability from a single vendor. For example, in the area of product liability, commercial availability has been found if the product in question is "capable of being purchased for feasible use."⁹ "Commercial availability" in this context has never required that the product be "capable of being purchased" from more than one source. Rather, the essence of the "commercially available" definition lies in whether the product is available for purchase by consumers, not in whether it could be

⁸ Conference Report at 181.

⁹ See, e.g., Oberst and Schroeder v. International Harvester Company, Inc., 640 F.2d 863, 865 (7th Cir. 1980) (one of the elements in proving a product liability action is that "there existed an alternative design which would have prevented the injury....") (emphasis added).

purchased from multiple sources.¹⁰ Other federal agencies have construed the term "commercially available" even more narrowly, in some instances requiring only that the product has been approved for commercial sale.¹¹ Consistent with this precedent, Section 629's "commercial availability" provision requires only that the product be available from a single source that is not affiliated with the relevant MVPD. Stated another way, the use of the term "commercial availability" in Section 629 does not imply a requirement of multiple unaffiliated retail vendors.

Moreover, any attempt by the Commission to read a more expanded availability requirement into the Act could undermine congressional objectives under Section 629. For example, Congress specifically directed the Commission not to take any actions which would threaten MVPD security or otherwise harm the MVPD's network.¹² If MVPD navigation devices were required to be "available through any vendor wishing to distribute the device,"¹³ this congressional objective could be imperiled because an MVPD's

¹⁰ See also 32 C.F.R. § 169.4 (Department of Defense regulations defining "commercially available" as available through a commercial, rather than an in-house source).

¹¹ See, e.g., Professional and Patients for Customized Care v. Donna Shalala, 56 F.3d 592, 597 (5th Cir. 1995) (Food and Drug Administration considers a drug to be "commercially available" when approved for commercial sale).

¹² See 47 U.S.C. § 549(b).

¹³ Notice at ¶ 23.

(as well as its equipment supplier's) ability to effectively secure its network would be seriously diminished.

A good illustration of this real-world dynamic is provided by the recent capture of a cartel of cable thieves bent on cornering the U.S. black market in illegal descramblers. As a press account of this sting operation noted:

[T]oday's black-box pirates are more sophisticated and organized than ever, selling boxes in bulk through tiers of distributors and retailers who, in turn, advertise descramblers on the Internet and in newspapers and magazines.¹⁴

Perhaps the most disturbing aspect of this cartel was that the boxes distributed by the pirates to steal the signals were non-security-based "plain Jane" converters by design, which the thieves had fitted with chips that allowed viewers to illicitly descramble premium cable signals. Thus, it is not simply security-related equipment that MVPDs and manufacturers must be concerned about when it comes to signal piracy and the need to control the distribution of consumer equipment.

In addition, MVPDs may wish to limit which retailers have access to compatible navigation devices for a variety of other legitimate business reasons. For example, certain retailers may have a reputation for carrying low-quality products, or may have a poorly trained sales staff. Others may fail to promote the MVPD or manufacturer's products or even disparage them to customers,

¹⁴ Mark Robichaux, "Cable Pirates Sought Plunder but Blundered into Major FBI Sting," Wall Street Journal, May 12, 1997, at A1.

favoring instead the equipment and services of the MVPD's competitors. Nothing in Section 629 or in sound principles of public policy could be cited to require an MVPD or manufacturer to make its products available to such retailers.¹⁵

Of course, once a piece of equipment is made commercially available through one unaffiliated vendor, consumer demand may drive the opening of additional third-party distribution channels. This outcome will differ from market to market, and the Commission should not attempt at the outset to predict such consumer response. Rather, the Commission's only obligation is to afford consumers a choice. Thereafter, market forces should be allowed to control any expansion of that choice in an efficient and secure manner.

(2) Consumers Are Reasonably Aware of Their Retail Option.

The second element of GI's proposed definition assures that consumers have sufficient information to know of the commercial availability of the MVPD equipment. As with other consumer awareness tests established by the Commission, this element could be satisfied in a number of ways. For example, in the context of cable effective competition petitions, the Commission has held that

¹⁵ See Continental T.V., Inc. v. G.T.E. Sylvania Inc., 694 F.2d 1132, 1138, n. 12 (9th Cir. Cal. 1982) ("[I]t is not unreasonable for a manufacturer to refuse to allow a specific retailer to market the manufacturer's products."). Equally important, the commercial availability standard does not require that covered equipment must be available from retailers or manufacturers that are not selected by the MVPD. Notice at ¶ 23. Rather, the only requirement for separation in the statute is that the MVPD and the third-party outlet are not "affiliated." The definition of "affiliate" under Section 629 is discussed in Section III.C., infra.