

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Implementation of Section 304 of the Telecommunications Act of 1996	)	CS Docket No. 97-80
	)	
Commercial Availability of Navigation Devices	)	
	)	
Compatibility Between Cable Systems and Consumer Electronics Equipment	)	PP Docket No. 00-67
	)	

Intel Corporation (“Intel”) is the world’s largest semi-conductor manufacturing company. It is a leader in the development and deployment of digital communications and computing technologies. Intel has a direct interest in seeing a competitive, standards-based marketplace for cable compatible navigation devices based on the “right to attach” proscribed by Congress. Intel is interested not only because it wants the opportunity to provide navigation devices, but because of the broader opportunities to provide a wide array of interoperable computing devices and the building blocks for those devices.

Intel is pleased to offer the following brief comments in response to the *Second Further Notice of Proposed Rulemaking* (“*Further Notice*”) in the above referenced matter. Intel commends the Commission for taking the first steps toward a national cable standard with respect to Unidirectional Digital Cable Products. The next and most important step, however, will be similar progress with respect to interactive, bi-directional digital cable products. To be sure, Section 629 of the Communications Act explicitly seeks to ensure consumer access to multi-channel video programming and other services offered over multi-channel video programming systems via product

manufacturers, retailers, and other vendors not affiliated with any multi-channel video programming distributor, and a national standard for interactive, bi-directional products that include PCs and other open platform and innovative products is essential. To that end, Intel and others are currently participating in a cross-industry dialogue on bi-directional interactive issues, and the comments presented herein do not attempt to address issues related to those ongoing bidirectional discussions.

### **I. Objective Criteria Will Promote Innovation**

The *Further Notice* seeks comment on (1) whether the Commission should adopt standards and procedures for the approval of connectors and content protection technologies for use with Unidirectional Digital Cable Products; (2) what, if any, objective criteria should be used to evaluate proposed connectors and technologies; and (3) who is the appropriate entity to make approval determinations.<sup>1</sup>

Intel supports objective criteria for approval of connectors and content protection technologies for use with Unidirectional Digital Cable Products. Objective criteria come in two general flavors, including (1) objective market based criteria that enable connectors and technologies that are actually used in the market place to be approved, and (2) objective functional criteria that describe technical capabilities with respect to rights management, robustness and security. Both sets of criteria are “objective” and each has its own advantages. The Commission should consider both, with an eye to approving many technologies and fostering innovation.

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<sup>1</sup> *Further Notice* ¶¶ 83-85.

**A. Objective Market Based Criteria.** Effective content protection is a complex combination of technology, policy and enforcement, with effective content protection achievable through a variety of combinations of each. For example, an effective enforcement mechanism might weigh heavily in one scheme, allowing a lighter technology implementation, while a lighter enforcement mechanism in one scheme might require a heavier technology implementation. Technology and content providers, however, are able to balance these complex and often times competing factors through arms length negotiations and reach agreement with respect to the use and deployment of a variety of content protection systems that are “effective” even though their particular characteristics reflect different combinations of technology, policy and enforcement. There simply is no “one size fits all” formulation, and, in fact, a “one size fits all” approach could stifle innovation and preclude many effective solutions. In this context, we believe that objective market based criteria, like those proposed in the Broadcast Flag proceedings, should be considered with respect to connector and technology approval for Unidirectional Cable Products. Certainly the technologies that are actually being used and deployed in the market to protect premium content should also be approved to protect premium cable content as well. By recognizing objective market based criteria, the ability of the market to sort through these otherwise complex issues will be reflected in the Cable Plug and Play environment, the reach of the cable network in the home and personal environment will be extended, and consumers will enjoy more product interoperability and greater choice and flexibility in their selection of digital products for their home and personal networks. In many respects, objective market based criteria are

in fact the best objective criteria because they in fact reflect a negotiated balance of technology, policy and enforcement principles.

**B. Objective Functional Criteria.** In addition to objective market criteria, Intel supports objective functional criteria as an additional means to get connectors and technologies approved for Unidirectional Cable Products. Functional criteria should be specifically limited to objective factors directly related to the technology's ability to keep content protected consistent with the obligations passed to it by the source device. The Commission should not, however, interfere with the private right to contract by dictating the terms and conditions of private license agreements, or otherwise even require the licensing of any proprietary technology. Those decisions should all be left to private parties in the market place. The goal of the Commission should simply be to get a number of technologies approved so that implementers and consumers have adequate choice. In this context, functional criteria should be limited to the following considerations:

Scope: The content protection method must provide reasonable constraints to impede the unauthorized use or redistribution (*i.e.*, use or distribution that is inconsistent with the specified usage rights) of Controlled Content delivered over digital cable systems.

Security: A content protection method must protect Controlled Content, in conformance with the applicable compliance rules, when such content is transmitted to or recorded by one or more consumer devices, including but not limited to single and multi-function devices such as TVs, set-top boxes, game consoles and personal video recorders as well as general purpose devices such as PCs. A content protection method may be implemented in software or hardware or in any combination of the two.

Strength/Robustness: All cryptographic algorithms, cryptosystems, keys and secrets, or their equivalents, should be of sufficient strength to meet the designated standard of robustness. The applicable robustness rules should require appropriate robust protection of compressed video Controlled Content traversing a user accessible bus in

digital form (“User accessible bus” means a data bus that is designed for end user upgrades or access, such as an implementation of a smartcard interface, PCMCIA, Cardbus, or PCI that has standard sockets or otherwise readily facilitates end user access. A “user accessible bus” does *not* include memory buses, CPU buses or similar portions of the device’s internal architecture that do not permit access to content in a form usable by end users).

Rights/Interoperability: The content protection method must ensure that usage rights equal to (or no more permissive than) those delivered with the content are preserved when the content is output to another device, including a device employing a different content protection system.

Authentication: The authentication method must be designed to ensure that Controlled Content is output to or accessible by another device (whether software or hardware) only if that device is compliant.

Compromise Recovery: It must be technologically possible to revoke and/or renew – through either software or hardware or any combination – the ability of an individual device to receive Controlled Content if the device’s authentication credentials have been compromised, including where a device is masquerading as a compliant device using the compromised device’s keys or credentials. Revocation must be governed by appropriate rules, procedures, and safeguards.

Intel recognizes that objective functional criteria, by definition, do not balance technology, policy and enforcement criteria in the same way that parties to a private negotiation do, and that formulating a good set of objective functional criteria is therefore challenging. In light of this, some may argue for functional criteria that are so stringent they effectively define a single technological approach and/or practically exclude a broad range of effective technologies that should in fact be approved. Intel encourages the Commission to resist efforts to twist or narrow these functional criteria and remain focused on ways to get effective technologies approved, not keep them out.

**C. Generic Approval of Technologies Promotes Innovation.** One of the issues that the Commission should consider in the application of both objective market and functional criteria relates to “connectors”, which typically represent in physical form an underlying transport protocol. The Commission should take great care to make sure that

technology deployment and innovation is not hindered on the basis of connector, or underlying transport protocol. Most digital content protection technologies are designed to take advantage of the layered nature of digital transport protocols, which means that the technology can deliver the same level of content protection regardless of the connector/transport it is mapped to. By way of example, Digital Transmission Content Protection Technology (“DTCP”) has been approved in the DFast License for use over the IEEE 1394 connector/protocol, but not Internet Protocol (“IP”), although DTCP has been mapped to IP (DTCP-IP). In short, DTCP-IP delivers the same level of content protection, including the same level of compliance and robustness, as does DTCP over IEEE 1394. In this context, generic approval of content protection technologies, including link layers, DRMs and other digital content protection technologies, is consistent both with (i) meeting the security obligations that a technology has, and (ii) promoting innovation in the market place and allowing consumer choice with respect to defining critical connection points in the home. The market should dictate connector and transport protocol, not an arbitrary license agreement.

## **II. Self Certification will Promote Innovation.**

Innovation depends on the ability of new product offerings to enter into the market place. Intel and many other IT companies have, throughout these proceedings, advocated self certification with respect to product compliance. In this context, Intel believes that the Commission should establish reasonable procedures to enable technology proponents to self-certify that a particular technology satisfies the objective market based criteria and/or the objective functional criteria. At the very least, the Commission should authorize independent third parties (in addition to Cablelabs) to

certify compliance with these objective market and functional criteria. The goal of the Commission should be an open and speedy process where technology proponents can be sure they will receive objective and fair consideration.

### **III. Approval Revocation Must Be Severely Constrained, if ever Permitted.**

The *Further Notice* seeks comment on the standards and procedures for revoking approval of output and content protection technologies.<sup>2</sup> It cannot be overstated that revoking a technology approval should be limited to the most catastrophic of circumstances, and Intel questions the wisdom of revocation generally from a consumer perspective. Certainly, approval revocation must be confined to technologies that are so compromised from both a technology and licensing perspective that they no longer offer any meaningful content protection. In this context, the Content Scrambling System (CSS) used to protect DVD Video content is instructive. Although CSS has been compromised and circumvention devices are available, the CSS licensing structure is still intact and CSS still provides sufficient content protection to support the growing and highly profitable DVD Video business. Approval revocations must therefore be governed by adequate due process that takes into consideration the interests and expectations of consumers, device and technology providers, and of course content providers and content distributors. Approval revocations must be governed by and subject to independent review (i.e., not at the sole discretion of Cablelabs) with an adequate appeals process. Approval revocations should only apply prospectively and have no impact on consumer products already in the marketplace.

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<sup>2</sup> *Further Notice* ¶ 86.

#### **IV. Consumer Notices Should Promote Innovation and be Fair.**

The *Further Notice* asks whether the Commission should require equipment manufacturers to provide consumers with pre-sale information about the functionalities of Unidirectional Digital Cable Products. Intel has long advocated consumer notice with respect to restrictions on managed content on the basis that informed consumers help drive innovation in the marketplace. The biggest problem that Intel sees with respect to consumer notice requirements for Unidirectional Digital Cable Products is that although the DFast License may be implemented in a broad range of products (including PCs and other innovative, open platform products) the designation “cable ready” and “cable compatible” is specifically reserved to a narrow class of consumer electronics products. From a consumer perspective, this inherently disadvantages a wide range of innovative products and interferes with the stated goal of achieving a *competitive* retail market for navigation devices. The Commission should move to level the playing field to allow any and all Unidirectional Digital Cable Products to carry a similar designation so long as the requisite functionality is present. The criteria for any such designation should be function, not form factor, based.

#### **V. Conclusion**

Intel encourages the Commission to focus on getting a range of technologies approved as digital outputs to promote interoperability and choice for consumers. Objective market criteria and objective functional criteria are useful tools for achieving that goal. In addition, technology discrimination based on connectors/transport protocols should not be used to dictate the design of the home and personal network. Finally, we

encourage the Commission to adopt open procedures that look after consumer interests and create a level playing field for all Unidirectional Digital Cable Products.

Respectfully submitted,

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