PIRACY PREVENTION AND THE BROADCAST FLAG

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BEFORE THE

SUBCOMMITTEE ON COURTS, THE INTERNET, AND INTELLECTUAL PROPERTY

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PIRACY PREVENTION AND THE BROADCAST FLAG

THURSDAY, MARCH 6, 2003

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON COURTS, THE INTERNET,
AND INTELLECTUAL PROPERTY,
COMMITTEE ON THE JUDICIARY,
Washington, DC.

The Subcommittee met, pursuant to notice, at 10:08 a.m., in Room 2237, Rayburn House Office Building, Hon. Lamar S. Smith [Chairman of the Subcommittee] presiding.

Mr. SMITH. The Subcommittee on Courts, the Internet, and Intellectual Property will come to order. It is nice to see how many people are interested in the subject at hand, and that includes, of course, Members who are here at the hearing, as well.

We will begin with opening statements and then move immediately to hear from our witnesses, and I will recognize myself for an opening statement.

Today, the Subcommittee will explore the complexity of the broadcast flag issue and also how it is connected to copyright law and the jurisdiction of the Subcommittee. On one level, we are ensuring that new technologies designed to prevent piracy do not limit the public's ability to make fair use of copyrighted works. On another level, we are continuing our efforts to support private industry efforts to curb piracy of their products.

We are in the midst of a transition to DTV. As early as 2006, all broadcasts must be aired in digital format. This presents opportunities for American consumers, businesses, and copyright owners. As with many technological advantages, the DTV transition has been frustrated by both technological and legal hurdles. There is a great danger of massive piracy of unprotected broadcasts once the transition to DTV is complete. Pirates can easily copy and redistribute millions of digital files in a matter of seconds. In the absence of protection against unauthorized redistribution, it is unlikely that content owners will make high-value programming available to broadcasters.

The broadcast flag is one solution supported by copyright owners and broadcasters. The broadcast flag is a sequence of digital bits embedded in a television program that signals that the program must be protected from unauthorized redistribution.

Since 1996, an inter-industry group called the Copy Protection Technical Working Group has been meeting regularly to discuss general copy protection issues. The Broadcast Protection Discussion Subgroup was formed specifically to address digital broadcast copy

protection. Representatives from the consumer electronics, information technology, motion picture, cable, and broadcast industries participated. The group announced its consensus on the use of a broadcast flag standard for digital broadcast copy protection. Unfortunately, final agreement could not be reached on a set of compliance and robustness requirements.

Last August, the Federal Communications Commission adopted a Notice of Proposed Rulemaking on digital broadcast copy protection. This Subcommittee has great interest in the FCC's action because the agency might issue rules that impact the Copyright Act and, therefore, involve this Subcommittee's jurisdiction.

Controversy continues over what the broadcast flag will and will not do and whether it will have an adverse effect on the ability of consumers to make fair use of copyrighted broadcast television. Fair use is a defense that may limit the copyright owner's exclusive rights. Section 107 of the Copyright Act states that fair use of a copyrighted work for purposes such as criticism, comment, news reporting, teaching, scholarship, or research does not constitute infringement. Fair use, of course, is determined on a case-by-case basis. For example, in *Sony Corporation* v. *Universal City Studios*, the Supreme Court held that the practice of taping free television broadcasting for later viewing was a fair use.

It is important that the transition to DTV and any implementation of rules requiring the use of the broadcast flag technology does not have an adverse impact on how consumers may legitimately use lawfully acquired entertainment products. At some point, this Subcommittee will decide whether to salute the broadcast flag or whether to lower it. For the time being, we are going to leave it at half mast.

That concludes my opening statement, and the gentleman from California, Mr. Berman, is recognized for his.

Mr. BERMAN. What about pledging allegiance to it? [Laughter.]

Mr. Chairman, I am grateful for your calling this hearing today. This is an issue that has some clear implications for copyright law and I think it is appropriate that the Subcommittee scrutinize the issue.

I understand that as part of its broadcast flag rulemaking, the FCC is currently deciding whether it even has statutory authority to implement the broadcast flag. I am absolutely no expert on FCC jurisdictional statutes and precedent and I don't presume to tell the FCC whether it has authority to implement a broadcast flag through a rulemaking and I don't intend to try and lecture the FCC about the appropriate parameters of a broadcast flag technology.

I have no problem with the FCC on a policy basis mandating use of the broadcast flag technology. While I am generally opposed to broad Government mandates on technology, I have long considered it appropriate in limited circumstances for the Government to order the use of certain technologies around which a marketplace consensus has emerged.

For instance, I supported the Macrovision mandate codified in section 1201(k) of the Copyright Act. I authored a bill to do that 10 years before it finally passed. Through 1201(k), Congress required the use of Macrovision's copy prevention technologies in cer-

tain videocassette recorders, camcorders, and other devices. I supported provisions of the Audio Home Recording Act of 1992 that required digital audio recording devices to utilize the serial copy management system.

So I don't object to the concept that the FCC might require incorporation of broadcast flag technology into appropriate hardware technologies and devices. That being said, I do have some concerns about the broadcast flag rulemaking, in particular, what some parties are asking the FCC to do.

Numerous comments have been filed asking the FCC to ensure that any broadcast flag technology allows consumers to make various uses of the digital TV programming it protects. These commentators purport to cite various copyright law doctrines, including first use, as the Chairman discussed, and first sale, as guaranteeing consumer utilization of copyrighted TV programming in the ways they hope to protect.

It is these claims about copyright law and the role of the FCC in analyzing them that gives me pause about the broadcast flag rulemaking. I am unaware of any precedent for the FCC interpreting the Copyright Act as part of an FCC rulemaking or in any other capacity, nor am I aware, for that matter, of the FCC ever mandating that copyright owners surrender any of their exclusive rights to consumers.

Congress itself has limited the rights of copyright owners when mandating the uses of technologies to protect copyright owners. In mandating use of the Macrovision technology, Congress ensured that it could not be used to prohibit the copying of most analog over-the-air television broadcasts. In mandating the use of the serial copy management system, Congress ensured that it could only be used to prohibit copying from copies, but not to prohibit copying an original video digital audio recording.

At least in part, Congress decided to limit these technology mandates in these ways so as to protect the traditional ability of consumers to make certain uses of the copyrighted works at issue. When Congress itself has placed limitations on the exclusive rights of copyright owners in the course of mandating certain technologies, I am unaware of any precedent for a Federal agency doing so.

About the closest precedent involves the Copyright Office, not the FCC. In the course of its triennial rulemaking under sections 1201(a)(1)(c), the Copyright Office is empowered to analyze whether the anti-circumvention provisions of the DMCA are adversely affecting non-infringing uses of copyrighted works. If the Copyright Office finds such adverse effects, it is empowered to create limited exemptions from the anti-circumvention provisions to protect the adversely-affected non-infringing uses.

But the Copyright Office has expertise in this whole area. The FCC doesn't have expertise in this particular area, and so I am opposed to the FCC attempting to interpret, regulate, or otherwise limit the exclusive rights of copyright owners in the course of its broadcast flag rulemaking.

As I stated before, the FCC may well have jurisdiction to mandate a broadcast flag technology, to establish rules regarding the implementation of that technology as part of its authority to facili-

tate the digital television transition. Under the same authority, the FCC may be able to mandate that the broadcast flag technology provides only limited protection to digital television broadcasts. My point is simply that the FCC should not attempt to interpret copyright law in the course of its rulemaking, nor to encapsulate copyright law doctrines in any technology it mandates. That, I think, is a prerogative of the Congress, and to the extent it delegates it, to the Copyright Office.

Thank you, Mr. Chairman.

Mr. SMITH. Thank you, Mr. Berman.

Without objection, other Members' opening statements will be made a part of the record, as will all the witnesses' complete statements, as will two items that I have been given, one from the National Association of Broadcasters and one from the Association for Competitive Technology. All that will be made a part of the record.

[The material referred to follows:]

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March 5, 2003

The Honorable Lamar Smith
Chairman
House Subcommittee on Courts, the Internet
and Intellectual Property
2231 Rayburn House Office Building
Washington, DC 20515

Dear Mr. Chairman:

The National Association of Broadcasters (NAB) would like to thank you for scheduling Thursday's hearing to explore issues surrounding the broadcast flag. In advance of that important hearing, we wanted to make you aware of NAB's position on this issue.

Full implementation of the broadcast flag will guarantee that free, over-the-air broadcasts receive the same level of protection from unauthorized redistribution as cable content and ensure that consumers continue to receive high quality free, over-the-air programming in the digital age. Absent such a safeguard, free over-the-air broadcasting will be perpetually denied compelling digital content, placing the medium at a permanent competitive disadvantage to cable and satellite operators whose closed platforms are less susceptible to piracy.

The information age has complicated content protection and vastly expanded the dangers of digital piracy. The Internet allows pirated content to be made instantly available to millions of people. Because it is transmitted in the clear, digital broadcast television programming is subject to a high risk of this sort of unauthorized redistribution. In light of these perils, content creators have made clear they will withhold compelling digital content from over-the-air transmission. This would dampen the speed with which consumers transition to digital television and jeopardize the billions of dollars local television stations have invested in digital television.

Due to these concerns, NAB strongly supports the FCC's ongoing proceeding (MB Docket 02-230) to standardize use of the broadcast flag. We look forward to working with both Congress and the Commission as they move towards resolution of this critical issue.

Sincerely,

Association for
Competitive Technology

March 6, 2003

Lamar Smith
Chairman

Howard L. Berman
Ranking Member

Committee on the Judiciary, Subcommittee on Courts, Internet, and Intellectual Property
2138 Rayburn House Office Building
Washington, DC 20515

VIA FACSIMILE to the Subcommittee on Courts, Internet, and Intellectual Property

Re: Broadcast flag

The Association for Competitive Technology (ACT) submits the following statement to aid the Subcommittee as it explores the subject of the broadcast flag. ACT represents over 3,000 information technology (IT) companies and professionals, including those involved in creating solutions for transmitting digital content. We strongly believe that the marketplace, without the assistance of additional legislation or regulation, is in the best position to respond to the demands of consumers and copyright holders. We have some serious concerns about the broadcast flag proposal before the Federal Communications Commission (FCC). It is important for us to point out from the outset that no IT company has called for a regulatory solution to protect Digital Television (DTV) signals. To suggest otherwise demonstrates a misunderstanding of IT's role and objectives in this debate.

Intellectual Property and the Tech Environment

The key to a thriving entrepreneurial tech sector is a healthy "Tech Environment." Changes in Tech Environment have their greatest effect on smaller, entrepreneurial companies. This is particularly important because, despite their size, these smaller companies represent the majority of the industry and are the driving force behind innovation and job growth. In fact, the Small Business Administration reports that two-thirds of all new high-tech jobs will be created by firms with fewer than 500 employees. To serve as effective stewards of this environment, policymakers need to foster an economic and political climate that encourages investment, entrepreneurship and innovation.

Intellectual property (IP) rights have proven essential to innovation, economic growth and more specifically, the legal distribution of digital content including DTV signals.

The current "broadcast flag" proposal is bad for the Tech Environment

ACT believes the FCC's broadcast flag rule, if promulgated, will negatively affect the Tech Environment because it will create a cost burden and chill innovation. To be sure, the FCCs' broadcast flag proposal is nothing short of a technology mandate that shifts the burden of copy protection from content owners to the IT and device industries. This mandate will impose significant

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design and manufacturing cost burden on the IT industry. This is particularly true given the convergence of IT and broadcast media. For example, computers are evolving into multimedia devices designed for enjoying an array of digital content. Despite the costs borne by the IT sector, the broadcast flag proposal imposes little burden on content providers, who merely need to instruct broadcasters to turn on the flag and pay license fees, if any, for authorized technology. Nor does it impose a measurable cost on broadcasters, who simply turn the flag on and off. On the other hand, device manufacturers and software producers will be forced to spend millions to design and build robust devices and software, design and manufacture altered output/inputs and recording technology, and pay license fees if they choose to use the authorized technology.

A second danger for the Tech Environment lies in the timing of a FCC-mandated broadcast flag schema. If the rule becomes effective before there are several authorized output and recording technologies in the marketplace the only solution will the product of those few companies fortunate enough to have influenced the process. Therefore, competition from smaller companies will be stifled as will consumer choice. Another concern is the potentially inadequate opportunity for manufacturers and software developers to implement compliant solutions into their products. The implementation process involves licensing, product redesign and manufacturing. For many small companies, these steps take time and resources. If the FCC rule does not afford them enough time these companies will not be able to produce compliant products and again, innovation suffers.

Conclusion

Like our colleagues in the IT Coalition, we believe that the IT industry can best serve to protect DTV signals by developing methods for selecting copy protection technologies that focus on two key concepts: 1) establishing objective functional criteria for protection and 2) formulating marketplace based self-certification rules. These development critera, coupled with encrypting content at the source, which will yield the proper content protection solution. At the end of the day, the concept underlying the "broadcast flag" is not something that ought to be "supported" or "opposed." Rather, the focus of discussion must be on advancing a DTV protection solution that is created, supported and implemented by a broad inter-industry coalition.

ACT appreciates the Subcommittee's decision to hold this discussion and we hope the members embrace the use of market-based technology rather than government mandates to protect the interests of copyright holders.

Sincerely,

Jonathan Zuck
President

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Mr. SMITH. Let me introduce our witnesses, and our first witness is the Honorable Marybeth Peters, the Register of Copyrights for the United States. She also has served as Acting General Counsel of the Copyright Office and as Chief of both the Examining and Information and Reference Divisions. She authored the "General Guide to the Copyright Office of 1976."

The next witness is W. Kenneth Ferree, who was appointed Chief of the Cable Service Bureau at the Federal Communications Commission in May 2002. The Cable Service Bureau was combined with the Mass Media Bureau, and Mr. Ferree was named Chief of the newly created Media Bureau. He provides legal, policy, and regulatory advice to the FCC Chairman as well as the other FCC Commissioners.

Our next witness is Fritz Attaway, Executive Vice President for Congressional Relations and General Counsel of the Motion Picture Association of America. Before joining MPAA, Mr. Attaway served as attorney advisor in the Cable Television Bureau of the Federal Communications Commission.

Our last witness is Edward J. Black, President and Chief Executive Officer of the Computer and Communications Industry Association. He has overall responsibility for the Association, which includes leading the effort on a wide range of legislative, policy, and regulatory areas for CCIA and its member companies.

Before we begin, I understand the gentlewoman from California, Ms. Lofgren, would like to say something about one of the witnesses.

Ms. LOFGREN. Thank you, Mr. Chairman. I just wanted to especially thank Mr. Black for being here. I know that it was not easy for him to appear before the Subcommittee. He has served his country well as the Chairman of the State Department's Advisory Committee on International Communications and Information Policy and is an expert in international law and copyright matters and I just thank him for making the extra effort to be here today.

Mr. SMITH. Thank you, Ms. Lofgren.

Let me remind our witnesses that we do have a 5-minute rule and we would like for you to summarize your complete testimony so that we can stay within that limit, and we will begin, Ms. Peters, with your testimony.

STATEMENT OF HON. MARYBETH PETERS, REGISTER OF COPYRIGHTS, COPYRIGHT OFFICE OF THE UNITED STATES, THE LIBRARY OF CONGRESS

Ms. PETERS. Mr. Chairman, Congressman Berman, Members of the Subcommittee, I am pleased to be here today to discuss the copyright issues raised by the broadcast flag proposal.

Let me begin by offering my congratulations to you, Mr. Chairman. I look forward to working with you on this and many other copyright-related issues. You are off to a strong start, and those in the copyright field are really encouraged.

As you know, the FCC's Notice of Proposed Rulemaking solicited comments on whether it was desirable to adopt a regulatory protection regime as part of the transition to digital broadcast television, and if so, how such a regime should be put in place. While the subject matter of the broadcast flag is technological, many of the com-

ments arguing both for and against its adoption are rooted in copyright law.

The purpose of my testimony is twofold. First, I want to explain the relationship between the broadcast flag proposal and important principles of copyright law. Second, I hope to provide some clarity on the fair use and first sale doctrines and their role in the broadcast flag discussions.

While I have no positions on the merits of the broadcast proposal at this time, I do believe that producers of television programming have ample ground to feel that the transition to digital broadcasting may make them subject to massive piracy in much the same way that music copyright owners have suffered from the phenomena of Napster and its progeny. Thus, they have good reason to insist that something be done to prevent such infringement.

I also don't take a position with regard to what users ought to be allowed to do in a broadcast flag regime. However, a number of FCC comments recommend that broad uses of copyrighted works be accommodated within the broadcast flag, some of which go beyond fair use. If copyright owners all agree to these broad uses, I see no problem. If there is no agreement and if instead it is determined that what is to be allowed is any activity that falls within fair use in the first sale doctrine, then it is important that there is an accurate and complete understanding of these copyright doctrines.

My concern is that many of the comments are predicated on various interpretations and applications of the 1984 Supreme Court's five-four decision in *Sony Corporation* v. *Universal Studios*. In Sony, motion picture copyright owners brought an infringement action against the manufacturer of the Betamax VCR. The claim was asserted under theory of secondary liability based on consumers' use of the VCR to record free over-the-air television broadcasts.

The Court held that making reproductions of free over-the-air television programs for the purposes of time shifting, in other words, watching the show at a later time, is a fair use. That finding was largely based on the Court's analysis of the fourth factor in section 107, namely whether time shifting adversely affects the market for or value of the copyrighted works at issue. The Court concluded, among other things, that the copyright owners had not provided sufficient evidence that time shifting would cause any likelihood of non-minimal harm to the potential market for or value of their copyrighted works.

Due to the nature of today's technologies, application of fair use to digital broadcasts would be significantly different than the Sony analysis. Some comments submitted to the FCC suggest that the Sony decision requires that fair use must vindicate consumer expectations as to the functionality of their home electronics devices. This claim with regard to consumer expectations misstates the nature of fair use. Consumer expectations are typically asserted and vindicated in the marketplace, not through fair use. The Sony decision is not based on whether time shifting met consumer expectations about what they could do with their VCRs, but rather it met the criteria for fair use codified in section 107.

The proper fair use inquiry would include an assessment of whether the consumer's activities, if permitted on a widespread

basis, would provide benefits to the public without undermining the incentive for the creation and distribution of copyrighted works, that is, the ability of authors to receive compensation for dissemination of their works. Consumer expectations are not particularly relevant to this question.

To be clear, I don't disagree that legitimate consumer expectations should play an important role in consideration of the broadcast flag proposal. My concern is that the important policy goals of copyright should not be undermined in the costs of adopting any regulatory framework that purports to be accommodating fair use when, in reality, it permits far more than fair use.

Additionally, some have suggested that the first sale doctrine, a limitation on copyright owners' distribution rights, requires that the broadcast flag permit certain retransmissions of copies of digital broadcasts. The Copyright Office in its DMCA section 104 report to Congress engaged in a thorough analysis of this issue, especially as it related to emerging technologies. Many who participated in that study had argued that first sale principles should apply to digital transmissions. We concluded then and continue to believe that there are fundamental differences between digital copies transmitted in a network environment and the physical copies covered by the existing first sale doctrine, and those differences argued against recognizing a new form of first sale for digital transmissions.

In closing, I would like to thank you for giving me the opportunity to testify today. As always, the Copyright Office would be pleased to assist the Subcommittee in its consideration of these important issues and we will continue our analysis of the broadcast flag proposal.

I would be pleased to answer any questions you may have.

Mr. SMITH. Thank you, Ms. Peters.

[The prepared statement of Ms. Peters follows:]

PREPARED STATEMENT OF MARYBETH PETERS

Mr. Chairman, Congressman Berman, Members of the Subcommittee, thank you for inviting me to appear before the Subcommittee today to discuss the copyright issues raised by measures for the protection of digital broadcast television signals, commonly referred to as the "broadcast flag" proposal. Let me offer my congratulations to you, Mr. Chairman. I look forward to working with you on this and many other copyright-related issues. You are off to a strong start and it is very encouraging to those of us in the copyright field.

As you know, in August 2002 the Federal Communications Commission issued a Notice of Proposed Rulemaking soliciting comments from interested parties on whether it was desirable to adopt a regulatory protection regime as part of the transition to digital broadcast television, and if so, how such a regime should be put into place.[1] While the subject matter of the broadcast flag proposal is technological, many of the comments submitted to the FCC arguing both for and against its adoption are rooted in copyright law.[2] As Congress has recognized, the Copyright Office has a long history of providing expert advice and assistance on these types of issues.[3]

The purpose of my testimony is twofold. First, I want to explain the relationship between the broadcast flag proposal and important principles of copyright law, such

[1] 67 Fed. Reg. 53,903 (Aug. 20, 2002).

[2] *See generally* Initial Joint Comments of Motion Picture Association of America (MPAA), *et al.;* Initial Comments of Consumer Electronics Association (CEA); Initial Comments of Computer & Communications Industry Association (CCIA); Initial Comments of Home Recording Rights Coalition (HRRC).

[3] *See* 17 U.S.C. § 701(b).

as the reproduction right, the distribution right and the doctrines of "fair use" and "first sale." I believe that as consideration of the broadcast flag proposal moves forward, a clear understanding of copyright law is necessary so that important copyright principles and policy are not undermined by the establishment of any regulatory scheme. Second, to this end, I hope to provide some clarity on the "fair use" and "first sale" doctrines and their role in the broadcast flag discussions.

While I have no position on the broadcast flag proposal at this time, I believe that producers of television programming have ample ground to fear that in the transition to digital broadcasting and with the advent of new consumer electronic devices that permit recipients of broadcasts to reproduce television programs and retransmit them on the Internet, they may encounter massive piracy in much the same way that record companies, recording artists, composers and musicians have suffered from phenomena such as Napster and its progeny. They have good reason to insist that something must be done to prevent such infringement. It may well be that the broadcast flag proposal is the best available solution. I do not have sufficient mastery of the technical details to venture an opinion at this time.

I also do not take a position with regard to what uses ought to be allowed by a broadcast flag, should that proposal be adopted. It is my understanding that many of the commenters in the FCC proceeding have insisted that implementation of the broadcast flag be done in a way that permits consumers to engage in acts of fair use. It is also my understanding that some proponents of the broadcast flag have taken the position that any technological measures that are adopted as part of the broadcast flag proposal should or at least could permit a number of practices that consumers desire to engage in even though they are beyond the scope of fair use. Copyright owners of broadcast programming may simply be willing to forego having technological measures prohibit those uses, while retaining their right to assert that some or all of those uses are infringing.

If there is consensus among copyright owners of broadcast programming that implementation of the broadcast flag should permit conduct by consumers that goes beyond fair use, I see no reason why such conduct should not be permitted. In other words, the conduct permitted by the broadcast flag need not necessarily be coextensive with fair use. If, on the other hand, the ultimate determination is to permit acts beyond those permitted by fair use and beyond those for which there is a consensus among the pertinent copyright owners, then there will be serious copyright implications which this Subcommittee will want to examine.

In any event, the fact remains that the FCC has been presented with a number of arguments asserting that the broadcast flag proposal must accommodate fair use and the first sale doctrine, and that the people making those arguments have asserted that certain kinds of conduct must be accommodated because it falls within those doctrines. If these arguments are to be made and considered, it is important that they be done so with an accurate understanding of the fair use and first sale doctrines.

THE BROADCAST FLAG DEBATE RAISES IMPORTANT ISSUES RELATED TO COPYRIGHT

As the first paragraph of the FCC's notice indicates, digital broadcast copy protection has been offered as a way to address the concern that "[i]n the absence of a copy protection scheme for digital broadcast television, content providers have asserted that they will not permit high quality programming to be broadcast digitally."[4] The reason for this reticence is concern about infringing downstream uses of digital broadcasts. This Subcommittee has become quite familiar with the characteristics of digital technology and the Internet. While those technologies provide enhanced quality of content and expanded opportunities for marketing, they also dramatically increase the ease and reach of copyright piracy.[5]

As we understand it, the "broadcast flag" is one solution for placing certain limits on how digital broadcasts can be redistributed after receipt by a consumer, so as to prevent harm to the economic value of that programming. In many ways, this dilemma is simply a specific example of the problem addressed by copyright law generally—how much protection is necessary to provide an incentive for authors to create and disseminate works to public for their use and enjoyment. Not surprisingly, therefore, many of the comments submitted to the FCC focus on questions of copyright law, such as to what extent personal copying and distribution of broadcast programming are governed by the fair use or first sale doctrines in copyright law,

[4] 67 Fed. Reg. 53,904.

[5] For a more in-depth discussion of some of the differences between analog and digital technology, *see* Copyright Office, Copyright Office DMCA Section 104 Report (2001), at 82–85. The results of this study were reported to Congress on August 29, 2001 and are available at: www.copyright.gov/reports/studies/dmca/dmca—study.html.

and how the Supreme Court's 1984 decision in *Sony Corp.* v. *Universal City Studios, Inc.* should be applied in creating a regulatory regime like the broadcast flag.

In addition, implementation of the broadcast flag may provide some precedent for how other activity involving digital technology and copyrighted works will be addressed under fair use and other provisions of the Copyright Act. As a result, the broadcast flag proposal cannot be considered in a vacuum, without regard to important aspects of copyright law and the use of copyrighted works. Moreover, the issues involved in the broadcast flag debate may have ramifications in the international copyright system.

FAIR USE AND THE *SONY* BETAMAX DECISION

In the next part of my testimony I hope to provide background on the fair use doctrine, the Sony decision and the first sale doctrine, and how they might relate to the broadcast flag. As I noted, many of the comments submitted on the broadcast flag proposal raised important questions of copyright law, such as the doctrine of "fair use."[6] A correct and complete understanding of fair use will assist in an evaluation of those comments. My testimony today is intended in part to provide a concise explanation of the fair use doctrine, and its application by the Supreme Court in the Sony case (often referred to as the Betamax decision)[7]—the central case around which much of this debate revolves.

Fair use is often described as an "equitable rule of reason," for which "no generally applicable definition is possible, and each case raising the question must be decided on its own facts."[8] It was a common law doctrine until 1976, when Congress first codified it in Section 107 of the Copyright Act as part of the general revision to copyright law it enacted that year.[9] The statutory text does not define fair use—rather, it provides guidelines for such a determination in the form of a list of four nonexclusive factors that must be applied to the entire circumstances of a particular case. In addition, the preamble to the section sets forth examples of uses that traditionally have been found to be fair uses, such as criticism, comment, news reporting and teaching. While this list is not determinative of the fair use issue, it was intended to provide additional guidance to courts as to the types of uses that had been ruled fair prior to the 1976 Act.[10]

There is no question that fair use is a fundamental component of U.S. copyright law, as it provides an essential safeguard to ensure that copyright does not stifle uses of works that enrich the public, such as "criticism, comment, news reporting, teaching—scholarship, or research."[11] Along with other doctrines like the first sale doctrine (which I discuss below) and the idea/expression dichotomy, fair use provides necessary "breathing room" in copyright and helps achieve the proper balance between protection of copyrighted works and their use and enjoyment. As the Supreme Court recently explained in the *Eldred* case, fair use is also one of copyright law's important First Amendment accommodations.[12]

Many of the comments in the FCC proceeding, however, misstate the nature of fair use and its role in our copyright system. Much of this confusion stems from a

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[6] *See* note 2.

[7] *Sony Corp.* v. *Universal City Studios, Inc.,* 464 U.S. 417 (1984).

[8] H.R. Rep. 94–1476, 94th Cong., 2d Sess., at 65 (1976).

[9] 17 U.S.C. § 107. The text of the section provides:

> Notwithstanding the provisions of sections 106 and 106A, the fair use of a copyrighted work, including such use by reproduction in copies or phonorecords or by any other means specified by that section, for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright. In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include-
>
> (1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
>
> (2) the nature of the copyrighted work;
>
> (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
>
> (4) the effect of the use upon the potential market for or value of the copyrighted work.
>
> The fact that a work is unpublished shall not itself bar a finding of fair use if such finding is made upon consideration of all the above factors.

[10] *See* H.R. Rep. 94–1476, at 66. The Judiciary Committee made clear that pre-1976 fair use precedent remained in effect, as Section 107 was to "restate the present judicial doctrine of fair use, not to change, narrow, or enlarge it in any way."

[11] 17 U.S.C. § 107.

[12] *Eldred* v. *Ashcroft*, 123 S. Ct. 769 (2003).

misreading of the Supreme Court's opinion in *Sony Corp.* v. *Universal City Studios*,[13] the first opinion in which the Supreme Court addressed fair use.[14]

In Sony, motion picture copyright owners brought a copyright infringement action against the manufacturer of the Betamax VCR. The claim was asserted under a theory of secondary liability, based on the consumers' use of the VCR to record television programs broadcast free over the air. The Court's 5–4 opinion addressed two issues: first, borrowing from the "staple article of commerce" doctrine in patent law, it ruled that secondary copyright liability could not be imposed based solely on the manufacture of copying equipment like the VCR where the device at issue "is capable of substantial noninfringing uses."[15] Second, it found that the VCR had "substantial non-infringing uses," including making reproductions of broadcast television programs for purposes of "time-shifting," that is, watching a show at a time later than when it is broadcast.[16]

The Court's finding that "time-shifting" of broadcast television programs was fair use was based predominantly on its analysis of the first and fourth factors in Section 107—namely, whether time-shifting adversely affects the market for or value of the copyrighted works at issue. The court concluded that "time-shifting merely enables a viewer to see such a work which he had been invited to see free of charge" and that therefore it was a "non-commercial" use.[17] It also found that the copyright owners had not provided sufficient evidence "that time-shifting would cause any likelihood of nonminimal harm to the potential market for, or the value of, their copyrighted works."[18]

Having found that "time-shifting" was a "substantial non-infringing use" of the VCR, the Court did not consider whether other activity related to home taping of broadcasts—such as creating a library of recorded shows, making further copies from the initial recording or distributing recorded shows to friends or others—would qualify as fair use. Nor did the Court rule, as one commenter suggests, that recognizing "time-shifting" as fair use was based on First Amendment concerns.[19] Thus, the suggestion that the *Sony* decision established a fair use "right" for individuals to engage in a wide variety of reproduction and distribution activities is simply incorrect.[20]

74 F.3d 1512 (6th Cir. 1996).

Moreover, because fair use is a case-by-case, fact-specific determination, one must consider the circumstances of the *Sony* case when attempting to apply it to today's environment. In the early 1980s, there was very little the typical consumer could do with the analog tape recording of a television show made with a VCR—further reproduction and distribution were subject to substantial physical constraints. The 1980s consumer did not have access to personal computers with hard drives, recordable DVD players, wireless home networks, websites, peer-to-peer software applica-

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[13] 464 U.S. 417 (1984).

[14] *Sony* was the first case in which the Supreme Court interpreted the 1976 Copyright Act and its codification of fair use in Section 107. Before the 1976 Act, the Supreme Court heard two cases that raised fair use issues, but did not issue an opinion in either of them. *See Sony*, 464 U.S. at 476 (dissenting opinion) (citing *Williams & Wilkins Co.* v. *United States*, 487 F.2d 1345 (1978), *aff'd by an equally divided court*, 420 U.S. 376 (1975) *& Benny* v. *Loew's Inc.*, 239 F.2d 532 (9th Cir. 1956), *aff'd by an equally divided court sub nom. Columbia Broadcasting System, Inc.* v. *Loew's Inc.*, 356 U.S. 43 (1958)).

[15] 464 U.S. 442.

[16] *Id.* at 442–456.

[17] *Id.* at 449.

[18] *Id.* at 451.

[19] *See Initial Comments of CCIA, at 17.*

[20] The phrase "fair use rights" is a misnomer. It is not true, as some commenters have argued, that consumers have a vested, enforceable right to make uses of a copyrighted work that may be deemed "fair" under the fair use doctrine. Rather, if such a use is made, fair use protects the otherwise infringer from liability. The structure and language of Section 107 make clear that fair use is not a right, but merely an affirmative defense to potential copyright infringement. *Compare* 17 U.S.C. § 106 (enumerating specific rights granted by copyright) *with* 17 U.S.C. § 107 (beginning "Notwithstanding the provisions of Sections 106 and 106A, the fair use of a copyrighted work—is not an infringement of copyright.") Courts have recognized this technical but important distinction in limiting the ability of commercial services to rely on the purported "fair use rights" of their customers to excuse reproduction and distribution of copyrighted works. *See* William F. Patry, *The Fair Use Privilege in Copyright Law (2d ed.1995)* at *432–33; see, e.g., Pacific & Southern Co.** v. *Duncan*, 744. F.2d 1490 (11 th Cir. 1984). *cert. denied*, 741 U.S. 1004 (1985), *on remand*, 618 F. Supp. 469 (N.D. Ga. 1985), *aff'd* 792 F.2d 1013 (11th Cir. 1986); *Basic Books, Inc.* v. *Kinko's Graphic Corp.*, 785 F.Supp. 1522 (S.D.N.Y. 1991) (copy shop found not to be acting as agent of colleges where professors provided materials for copying); *RCA/Ariola Int'l, Inc.* v. *Thomas Grayston Co.*, 845 F.2d 773, 782 (8th Cir. 1988) (fair use claim by manufacturer of machines permitting customers of retail stores to duplicate tapes rejected); *cf. Princeton University Press* v. *Michigan Document Services*,

tions and high-speed Internet connections, all of which make acquisition, reproduction and distribution of recorded broadcasts (in high-quality digital form) easy and inexpensive.

In today's digital world, the "private" and "non-commercial" use of works can quickly and easily become public distribution of copies that has a substantial harmful effect on the commercial value of copyrighted works. As my predecessor as Register of Copyrights observed nearly 40 years ago, "a particular use which may seem to have little or no economic impact on the author's rights today can assume tremendous importance in times to come."[21] We have all watched over the past few years as Napster and other peer-to-peer software applications transformed private hard drives and individual, person-to-person exchanges of digital files into a major distribution network of unauthorized copies of works. Indeed, this Subcommittee held a hearing on precisely that topic last week. That activity has undercut the ability of legitimate, revenue-generating distribution services on the Internet to develop and flourish. Indeed, the Ninth Circuit Court of Appeals recognized this situation in the *Napster* case when it distinguished *Sony* in analyzing the potential market harm caused by individuals' distribution of copyrighted music files over the Napster service.[22]

Other commenters suggest that the *Sony* decision requires that fair use must vindicate "consumer expectations" as to the functionality of their home electronics devices. This claim, too, misstates the nature of fair use. Consumer expectations are typically asserted and vindicated in the marketplace, not through fair use. Recent history shows that to the extent copyright owners offer a product in a format that consumers find unattractive and limiting, it will be rejected.[23] The *Sony* decision is not based on whether time-shifting met "consumer expectations" about what they could do with their VCRs, but rather whether it met the criteria for fair use in Section 107, including principally whether the activity harmed the market for copyrighted works.[24]

The proper fair use inquiry would include an assessment of whether the consumer's activity, if permitted on a widespread basis, will provide benefits to the public without undermining the incentive for the creation and distribution of works—that is, the ability of authors to receive compensation for the dissemination of their works. Consumer expectations in and of themselves are not particularly relevant to this question. Indeed, users of peer-to-peer services like Napster are becoming accustomed to the notion that creative works should be provided free without any restrictions on further copying and distribution. Such "consumer expectations" are not only inconsistent with traditional fair use jurisprudence, they are destructive to copyright's principles and purpose.

To be clear, we do not disagree that legitimate consumer expectations should play an important role in consideration of the broadcast flag proposal. It appears that consumer expectations have been a driving force behind the proposal, as the proposed regime would permit unlimited copies for personal use, largely unrestricted use in the home network environment, and the potential for use outside a home network environment. Many broadcasters and copyright owners apparently recognize that even a mandated solution like the broadcast flag must meet the needs and desires of consumers or they will not embrace digital television.[25] Our concern is that the important policy goals of copyright should not be undermined in the course of adopting any regulatory framework that purports to be protecting fair use, when in reality it permits far more than fair use.

THE FIRST SALE DOCTRINE AND DIGITAL CONTENT

Some have also suggested that the "first sale" doctrine of copyright law requires that the broadcast flag proposal permit certain activity with respect to copies of dig-

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[21] COPYRIGHT LAW REVISION, 89th CONG., 1st SESS., SUPPLEMENTARY REPORT OF THE REGISTER OF COPYRIGHTS ON THE GENERAL REVISION OF THE U.S. COPYRIGHT LAW, PART 6, at 14 (Comm. Print 1965). *See also* S. Rep. 94–473, 94th Cong., 1st Sess., at 65 (1975) ("Isolated instances of minor infringements become in the aggregate a major inroad on copyright that must be prevented.").

[22] *A&M Records, Inc.* v. *Napster, Inc.*, 239 F.3d 1004, 1016–17 & 1019 (9th Cir. 2001).

[23] *See e.g.*, Michael Liedtke, *H&R Block Jabs at TurboTax Software*, ASSOC. PRESS, March 4, 2003; Stephanie Stoughton, *Circuit City's Slipped Disc; Firm Concedes Defeat; Abandons Divx Technology*, WASH. POST, June 17, 1999; Associated Press, *Circuit City, Partner Let Divx Expire Lack of Industry Support Cited*, DAILY PRESS, *June 17, 1999.*

[24] That is not to say that in determining whether to implement a broadcast flag proposal, legitimate consumer expectations should not be taken into account. But if they are, it should not be because they purportedly are equivalent to fair use.

[25] *See* Initial Comments of National Broadcasting Company, Inc. (NBC), at 4.

ital broadcasts.[26] As this Subcommittee knows, the Copyright Office, pursuant to Section 104 of the Digital Millennium Copyright Act ("DMCA") of 1998, recently engaged in a comprehensive study of the relationship between the first sale doctrine and existing and emergent technology.[27] The Copyright Office issued its report in August 2001 and I testified before this Subcommittee at the end of that year about our findings and recommendations in that report.

The "first sale" issues raised with respect to the broadcast flag appear very similar to those raised in the DMCA Section 104 Report: whether the first sale doctrine as it currently exists would permit certain activities related to digital transmission of copyrighted works. Some have suggested that the first sale doctrine requires that individuals be permitted to transmit digital copies of broadcasts to a circle of family or friends and inside and outside the home. As with the fair use issue, the Copyright Office believes that consideration of the broadcast flag should not be made based upon an incorrect or incomplete understanding of the first sale doctrine. I would like to provide a brief description of that doctrine and our conclusions from the DMCA study, which remain unchanged today.

The common-law roots of the first sale doctrine allowed the legitimate owner of a particular copy of a work to dispose of that copy. This judicial doctrine was grounded in the common-law principle that restraints on the alienation of tangible property are to be avoided in the absence of clear congressional intent to abrogate this principle. This doctrine was first codified as section 27 of the Copyright Act of 1909 and now appears in section 109 of the Copyright Act of 1976. Section 109(a) specifies that notwithstanding a copyright owner's exclusive distribution right under section 106, the owner of a particular copy or phonorecord that was lawfully made under Title 17 is entitled to sell or further dispose of the possession of that copy or phonorecord.

The first sale doctrine is a limitation on the copyright owner's exclusive right of distribution. It does not limit the exclusive right of reproduction. While the sale or other disposition of a purchased VHS tape or book would only implicate the distribution right, the transmission of an electronic copy of the same work from one device to another would typically result in the making of a reproduction. This activity therefore entails an exercise of an exclusive right that is not covered by section 109. In other words, there is nothing in the first sale doctrine as it currently exists which would authorize the type of activity that some have proposed that the broadcast flag should permit.

In the deliberations leading up to the DMCA Section 104 Report, several participants argued that first sale principles should apply to digital transmissions, notwithstanding that such transmissions typically involve the reproduction right.[28] It appears that a similar suggestion is being made in the broadcast flag proceeding. We concluded then, and continue to believe, that there are fundamental differences between digital copies transmitted in a networked environment and the physical copies covered by the existing first sale doctrine, and that those differences argue against recognizing a new form of first sale for digital copies.

CONCLUSION

In closing, Mr. Chairman, the Copyright Office has only begun its analysis of the broadcast flag proposal, and therefore at this time is taking no position on whether the broadcast flag proposal should be adopted or whether it should be changed in any way to reflect any aspect of existing copyright law, such as the fair use or the first sale doctrines. Let me be clear though, the appropriate balance between copyright owners, broadcasters, equipment manufacturers and consumers is fundamental to our support of any effort to devise a regulatory scheme governing digital broadcasts. Such a compromise, and the debate leading to it, should not be based on an incorrect understanding of copyright law and policy.

I want to thank the Subcommittee again for giving me the opportunity to testify today. The Copyright Office would be pleased to assist the Subcommittee in its consideration of these important issues and I am happy to answer any questions you may have.

Mr. SMITH. Mr. Ferree?

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[26] *See* Initial Comments of CEA, at 6.

[27] Copyright Office DMCA Section 104 Report (2001).

[28] *See* Copyright Office DMCA Section 104 Report (2001), at 44–48, 80–105 for a summary and analysis of the proposals for a digital first sale doctrine based on a "forward and delete" model.

STATEMENT OF W. KENNETH FERREE, BUREAU CHIEF, MEDIA BUREAU, FEDERAL COMMUNICATIONS COMMISSION

Mr. FERREE. Good morning, Chairman Smith, Congressman Berman, and Members of the Subcommittee. I am Ken Ferree, Chief of the FCC's Media Bureau, and I am pleased to be here today to talk to you about our proceeding on broadcast copy protection.

The digital television transition, which is part of a larger technological revolution affecting every industry the FCC regulates, is a complex undertaking. It will affect virtually every segment of the television industry and every American who watches television. Unlike some technology advances, however, the DTV transition is not purely a marketplace phenomenon. Congress and the FCC have been involved in the transition from the beginning. We now are entering into a critical stage of that transition. It is apparent that our efforts over the next 2 years may well set the course for television broadcasting in the 21st century.

Perhaps the key piece of the DTV puzzle is content. Consumers will invest in digital television only when they see content that is significantly better than that which is available in analog. The content could be high-definition, it could be multicasting, it could be interactive, but it must be significantly better than analog and there must be enough of it to make their investment worthwhile.

Over the last year, the amount of high-definition programming has grown dramatically. Indeed, the amount of HD programming during broadcast prime time is up about 50 percent over a year ago. Many sporting events now are broadcast in high definition, and this year, the NBA finals and "Monday Night Football" will be added to the mix.

Content providers, however, say that we are living on borrowed time. When there are enough DTV receivers and fast broadband connections to permit unauthorized redistribution of broadcast DTV content over the Internet, they argue, high-value content will be made available only on protected platforms like cable or satellite.

This is how the Commission became involved in these issues. We have no desire to duplicate the work of the Copyright Office, but the Commission does have an interest in keeping the DTV transition on track. So when content providers, Members of Congress, and others warn that we may be on the verge of losing compelling broadcast content, these claims are taken seriously.

In late 2001, an inter-industry working group attempted to develop a technical solution to the problem, specifically focusing on the broadcast flag. The working group did not, however, reach consensus on all issues, and in August of 2002, the FCC issued its Notice of Proposed Rulemaking on digital broadcast copy protection.

The notice takes nothing for granted. Indeed, the first issue raised is whether a DTV copy protection regime is even necessary, that is, whether piracy concerns will cause content providers to withhold certain content from broadcast channels and whether the lack of such content will impair the DTV transition. If a problem does exist, we ask whether the FCC should adopt a copy protection mechanism, how such a system would work, how it would be enforced, whether compliance and robustness rules would be required, and how such a system might impact consumers.

Importantly, the Commission also sought comment on its authority in this area.

The comment period is now closed and our staff is reviewing the record and beginning the process of developing a recommendation for the full Commission's consideration. At this point, we have drawn no conclusions as to whether a broadcast flag system is necessary or appropriate or whether the Commission has jurisdiction to adopt such a system. Nevertheless, it is entirely fitting and proper that the Commission undertake this examination. The transition to digital television is a national priority. If content protection concerns could be impeding that transition, the Commission is obliged to examine the issue. We will, of course, keep this Committee apprised of important developments as we proceed.

Thank you for the opportunity to testify today and I will be happy to answer any questions you may have.

Mr. SMITH. Thank you, Mr. Ferree.

[The prepared statement of Mr. Ferree follows:]

SUMMARY OF WRITTEN STATEMENT OF W. KENNETH FERREE

March 6, 2003

- Virtually every industry the Federal Communications Commission regulates is undergoing a digital migration. In this context, the Commission is overseeing the transition to digital television – a complex undertaking that impacts every segment of the television industry and every American who watches television.

- We are at a critical stage of the DTV transition. Key pieces of the puzzle are falling into place. One of the key pieces is content. Consumers need a reason to invest in the digital transition. We have seen a great increase in the amount of high definition content available to consumers; however, content providers say we are living on borrowed time.

- Content providers assert that soon we will reach a critical mass of DTV receivers and fast broadband connections which would permit the widespread unauthorized redistribution of DTV content over the Internet. When that happens, the content providers say they will be forced to remove the high-value content from broadcast channels, making it available only on cable and satellite.

- It is in this context that the Commission became involved in the "broadcast flag" issue. The Commission does not want to duplicate the work of the Copyright Office, but we do have an interest in keeping the DTV transition on track. We issued a *Notice of Proposed Rule Making* on digital broadcast copy protection in August 2002, after an inter-industry working group attempted to develop a technical solution that resulted in partial consensus.

- Our *Notice* does not make any proposals, but simply lays out the issues in a neutral manner. The first issue raised is whether a DTV copy protection regime is even necessary. If it is, we then asked whether the Commission can and should adopt a "broadcast flag" type mechanism to address the problem.

- The comment period in the proceeding closed on February 18, 2003. The Commission received over 6,000 comments – most from individual citizens. The Media Bureau is now reviewing the record and beginning the process of developing a recommendation for the full Commission's consideration. However, it is difficult to predict when the process will be complete.

- We approach our task with an open mind and have not drawn conclusions, but it is proper to undertake this examination due to our commitment to the DTV transition. We will keep this Committee apprised of important developments as we proceed and look forward to working with you.

Good morning, Chairman Smith, Congressman Berman, and members of the Subcommittee. I am Ken Ferree, Chief of the FCC's Media Bureau. I am pleased to be here this morning to discuss the issue of digital broadcast copy protection, and specifically the Federal Communications Commission's pending inquiry on a "broadcast flag" or other copy protection systems for protecting digital broadcast content from improper redistribution.

I. THE DIGITAL MIGRATION

Virtually every industry the Commission regulates is undergoing a revolution. Technological innovation, the development of new consumer markets, and new competitive entry are changing the face of the communications landscape. This revolution demands new legal and regulatory approaches. We are at a crossroad in communications as technology drives policymakers, industry, and American citizens to migrate from the predominately analog realm to the modern digital world. This "Digital Migration," in the words of Chairman Michael Powell, is at the foundation of the Commission's policy agenda.

As a part of this digital migration, the transition to digital television is a massive and complex undertaking, affecting virtually every segment of the television industry and every American who watches television. Unlike some technology advances, however, the DTV transition is not purely a marketplace phenomenon. The Congress and the FCC have been involved in the DTV transition from the beginning. The FCC launched its "advanced television" proceeding in 1987. Since then, the FCC has been continuously involved in helping shepherd the nation's broadcast service migration to digital transmission by, among other things, adopting

a standard for digital broadcasting, creating a DTV Table of Allotments, awarding DTV licenses, establishing operating rules for the new service, and overseeing the physical build-out.

We are entering into a critical stage of the transition. The key pieces of the puzzle are finally falling into place. Without being melodramatic, it is apparent that our efforts over the next two years may well set the course for television broadcasting in the twenty-first century. The Commission has actively participated in the DTV Roundtable discussions held by Energy and Commerce Committee Chairman Billy Tauzin and Ranking Member John Dingell, as well as Subcommittee Chairman Fred Upton and Ranking Member Edward Markey. These roundtables brought the industries together to advance the dialogue regarding the DTV transition.

In addition, Chairman Powell set forth a voluntary plan in April 2002 that the Commission believes has – and will – provide an immediate boost to the DTV transition. (As a courtesy to the Subcommittee members, the voluntary plan is attached at Appendix 1.) In relevant part, the so-called Powell DTV Plan seeks to advance two key policy objectives: (1) increasing the level of compelling digital content available to American consumers; and (2) providing convenient access to that content to consumers. Virtually every industry involved has made real commitments to the challenges posed in the Powell DTV Plan in order to advance the transition.

The broadcast networks were asked to provide HD or other "value-added DTV programming" during at least half of their prime-time schedule. The top four network affiliates in the top 100 markets were asked to be capable of passing through all HD programming, if their

network provides such programming, and to promote their DTV programming on their analog channels. On the cable side, cable systems with 750 MHz or higher were asked (1) to offer to carry up to five broadcast or other digital programming services that carried HD or other "value-added DTV programming" during at least 50% of their prime time schedule, (2) to provide subscribers with the option of acquiring a single set-top box that allows the display of high definition programming, and (3) to market the digital television options consumers have through their cable systems. DBS companies were asked to carry up to five digital programming services that carried HD or other "value-added DTV programming" during at least 50% of their prime-time schedule. Finally, consumer electronics manufacturers and retailers were asked (1) to commit to meeting the demand for cable set-top boxes that allow for the display of HD programming, (2) to include over-the-air DTV tuners in new TV receivers on a phased-in basis, (3) to include digital inputs on new HD-capable TV receivers, and (4) to market the broadcast, cable and satellite DTV options at point-of-sale.

Indeed, as stated below, there has been a marked increase in the amount of HD programming available over the last year, and that content is more accessible to consumers through cable and satellite. Additionally, over-the-air DTV tuners will be available under the Commission's mandate beginning in 2004. The transition and the positive benefits for American consumers could really pick up steam if we can keep the train on track.

II. CONTENT IS A KEY

One of the key pieces of the puzzle – perhaps *the* key piece of the puzzle – is content. Consumers need a reason to invest in the digital transition. They have a very good analog

system now. Why should they switch? Content. They will invest in digital when they see content that is significantly better than what they have available in analog today. That content could be high-definition. It could be multicasting. It could be interactive. Or it could be a combination of all three. The important thing is that it be significantly *better* than analog and that there be *enough* of it to make their investment worthwhile.

The good news is that over the last year the amount of HD programming available to viewers has grown dramatically. Indeed, the amount of HD programming during broadcast primetime is up about 50 percent over a year ago. We have also seen many premier sporting events broadcast in HD during the past year—including the Olympics, the Super Bowl, the Masters and the U.S. Open tennis tournament. This year, we have been told, the NBA Finals, the Stanley Cub, and Monday Night Football will be added to the mix of broadcast HD content. We have also seen a rise in HD programming on cable and satellite.

However, many content providers say we are living on borrowed time. They assert that soon we will reach a critical mass of DTV receivers and fast broadband connections to permit the widespread unauthorized redistribution of broadcast DTV content over the Internet – the "Napsterization" of video, as some have called it. When that happens, these parties argue, they will be forced to protect their high-value content by removing them from broadcast distribution channels and making them available only on better-protected digital platforms like cable and satellite.

III. COPY PROTECTION AND BROADCAST FLAG

This is how the Commission became involved in these copy protection issues. We have no desire to duplicate the work of the U.S. Copyright Office. But the Commission does have an interest in keeping the digital television transition on track and maintaining the vitality of our free, over-the-air television service. So when content providers, Members of Congress and others warned that we may be on the verge of losing compelling broadcast content, these claims have to be taken seriously.

In late 2001, an inter-industry working group attempted to develop a technical solution to the problem, specifically focusing on the possibility of a "broadcast flag" system. On June 3, 2002, the working group issued its Final Report, describing at length the issues on which the private-sector participants were able to reach a consensus and those on which they were not. It was in this context that, on August 8, 2002, the FCC issued its *Notice of Proposed Rulemaking* on digital broadcast copy protection (appended hereto at Appendix 2).

The *Notice* makes no proposals, but simply lays out the issues in a neutral manner. Indeed, it does not even assume that a problem exists. The first issue raised in the *Notice* is whether a DTV copy protection regime is even necessary—that is, whether content providers' piracy concerns have caused or will cause them to withhold high quality content from broadcast channels, and whether the lack of such programming will delay the DTV transition.

If a problem is found to exist, the Commission then asked whether it can and should adopt a "broadcast flag" or other copy protection mechanisms to address it. As for how such a

system would work, the Commission asked neutral questions about compliance and robustness rules, technical impediments, and enforcement issues. The Commission also sought comment on the impact a content protection mechanism would have on consumers—both on their ability to make copies of broadcast television content and on the technology in their homes. Finally, the FCC sought comment on its authority to adopt rules in this area. It cited two possible jurisdictional bases: (1) its ancillary jurisdiction, and (2) Section 336 of the Communications Act, in which Congress authorized the FCC to adopt certain rules relating to the DTV transition.

The comment period in the proceeding closed on February 18, 2003. In all, the Commission received more than 6,000 comments, most of them from individual citizens. For many American citizens, the initiation of the Commission's inquiry was their first opportunity to register their comments and viewpoints with the Commission. We also heard from content producers, broadcasters, the computer and consumer electronics industries, consumer groups and many others. I think it is safe to say that virtually every issue raised in the *Notice* is the subject of contention. Our staff is now reviewing the record and beginning the process of developing a recommendation for the full Commission's consideration.

IV. CONCLUSION

It is difficult to predict when the Commission's inquiry of this critical DTV issue will be complete or to speculate as to the potential results. The Commission approaches this task with an open mind, keeping the public interest at the forefront. At this point, we have drawn no conclusions that a "broadcast flag" system is necessary or appropriate, or that the Commission has jurisdiction to adopt such a system. Nevertheless, I believe it is entirely fitting and proper

that the Commission undertake this examination. The transition to digital television is a national priority. The Commission is directly and deeply involved in trying to make that transition as quick and painless as possible for the American people. If content protection issues are potentially impeding us from reaching that goal, the Commission is obliged to examine them. We will, of course, keep this Committee apprised of important developments as we proceed, and we look forward to working with you. Again, thank you for the opportunity to testify today. I will be happy to answer any questions you may have.

APPENDIX 1:

Chairman Powell's Proposal for Voluntary Industry Actions to Speed the Digital Television Transition

Proposal for Voluntary Industry Actions to Speed the Digital Television Transition*

1. Top four broadcast networks (i.e., ABC, CBS, Fox and NBC), HBO, and Showtime:

Provide high-definition or other "value-added DTV programming" during at least 50% of their prime-time schedule, beginning with the 2002-03 season. Value-added DTV programming could be high-definition, innovative multicasting, interactive, etc. – so long as it gives consumers something significantly different than what they currently receive in analog. This would include something more than a single stream of standard-definition digital programming.

2. Broadcast Licensees:

By January 1, 2003, or as soon thereafter as they commence broadcasting, DTV affiliates of the top four networks in markets 1-100 will obtain and install the equipment necessary to pass through network DTV without degradation of signal quality (e.g., pass through HD programming, if that is what its network provides).

Stations broadcasting DTV programming will inform viewers of their digital content through on-air promotional announcements over their analog broadcast facilities.

3. Cable:

By January 1, 2003, cable systems with 750 MHz or higher channel capacity will:

Offer to carry, at no cost, the signals of up to five broadcast or other digital programming services that are providing value-added digital programming during at least 50% of their prime-time schedule.

Provide cable subscribers the option of leasing or purchasing a single set-top box that allows for the display of high definition programming. These devices will include digital connectors (e.g., 1394/5C and/or DVI/HDCP) at the request of the consumer.

Market the digital television products the operator provides, including on their systems and in monthly bills, so that consumers know what programming is available and how they can receive it over the cable plant.

4. Direct Broadcast Satellite:

By January 1, 2003, carry the signals of up to five digital programming services that are providing value-added digital programming during at least 50% of their prime-time schedule.

* Nothing contained in this Proposal for Voluntary Industry Action is intended to prejudge any issue in pending or future Commission proceedings.

5. Equipment Manufacturers and Retailers:

Commit to meeting the demand for cable set-top boxes that allow for the display of high definition programming.

Market broadcast, cable and satellite DTV options at point-of-sale.

Include over-the-air DTV tuners in new broadcast television receivers according to the following schedule:

Sets 36" and above – 50% of units to have DTV tuners by January 1, 2004; 100% by January 1, 2005;

Sets 25"–35" – 50% of units to have DTV tuners by January 1, 2005; 100% by January 1, 2006;

Sets 13"-24" – 100% of units to have DTV tuners by December 31, 2006.

Include digital input(s) (e.g., 1394/5C and/or DVI/HDCP) on all new HD-capable television receivers and display devices by January 1, 2004.

APPENDIX 2:

Notice of Proposed Rule Making
In the Matter of Digital Broadcast Copy Protection
MB Docket No. 02-230

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

In the Matter of	)	
	)	
Digital Broadcast Copy Protection	)	MB Docket No. 02-230
	)	
	)	
	)	

NOTICE OF PROPOSED RULEMAKING

Adopted: August 8, 2002 **Released: August 9, 2002**

Comment Date: October 30, 2002
Reply Comment Date: December 13, 2002

By the Commission: Commissioner Copps concurring and issuing a statement.

I. INTRODUCTION

1. The ongoing digital television ("DTV") transition poses many unique logistical and technological challenges. The current lack of digital broadcast copy protection may be a key impediment to the transition's progress. Digital copy protection, also referred to as digital rights management, seeks to prevent the unauthorized copying and redistribution of digital media. Without adequate protection, digital media, unlike its analog counterpart, is susceptible to piracy because an unlimited number of high quality copies can be made and distributed in violation of copyright laws. In the absence of a copy protection scheme for digital broadcast television, content providers have asserted that they will not permit high quality programming to be broadcast digitally.[1] Without such programming, consumers may be reluctant to invest in DTV receivers and equipment, thereby delaying the DTV transition.[2]

2. Since 1996, an inter-industry group called the Copy Protection Technical Working Group ("CPTWG") has served as a discussion forum for general copy protection issues. On November 28, 2001, the Broadcast Protection Discussion Subgroup ("BPDG") was formed under the auspices of CPTWG in order to specifically address digital broadcast copy protection. According to the *BPDG Final Report*, more than 70 representatives of the consumer electronics, information technology, motion picture, cable and broadcast industries took part in the group.[3] As a result of its deliberations, the BPDG recently announced a consensus on the use of a "broadcast flag" standard for digital broadcast copy protection. This consensus would require use of the Redistribution Control Descriptor, as set forth in ATSC Standard A/65A (the "ATSC flag"), to mark digital broadcast programming so as to limit its improper use. Despite

[1] *See, e.g.*, Letter from Susan L. Fox, Walt Disney Company, to Magalie Roman Salas, Secretary, FCC, CS Docket No. 97-80 (Nov. 8, 2001).

[2] *See* NCTA, *The Transition to Digital Television*, http://www.ncta.com/legislative/legAffairs.cfm?legRegID=15.

[3] Final Report of the Co-Chairs of the Broadcast Protection Discussion Subgroup to the Copy Protection Technical Working Group at 4 (June 3, 2002) ("*BPDG Final Report*").

[6] *BPDG Final Report* at 14-17.

the consensus reached on the technical standard to be implemented, final agreement was not reached on a set of compliance and robustness requirements to be associated with use of the ATSC flag, enforcement mechanisms, or criteria for approving the use of specific protection technologies in consumer electronics devices.[6] While the *BPDG Final Report* indicated that a parallel discussion group may be established by CPTWG to continue discussions in some areas where BPDG participants were unable to reach a consensus, including enforcement mechanisms, it remains unclear whether such group will serve as a forum for ongoing industry negotiations.[7]

II. THE BROADCAST FLAG

3. In light of the importance placed upon digital broadcast copy protection by some industry participants, and with a view towards facilitating the DTV transition, this *Notice* seeks comment on whether a regulatory copy protection regime is needed within the limited sphere of digital broadcast television. As an initial matter, we seek comment on whether quality digital programming is now being withheld because of concerns over the lack of digital broadcast copy protection. In particular, we seek comment on the nature and extent of the piracy concerns expressed by content providers. If such programming is being withheld, will it continue to be withheld in the absence of a regulatory regime? To what extent would the absence of a digital broadcast copy protection scheme and the lack of high quality digital programming delay or prevent the DTV transition? Would the resulting dynamic threaten the viability of over-the-air television? What impact would this have on consumers?

4. If a digital broadcast flag or other regulatory regime is needed, we seek comment on whether the Commission should adopt rules or create some other mechanism to resolve outstanding compliance, robustness and enforcement issues. We also seek comment on whether there are any technical impediments to implementation of a digital broadcast copy protection scheme. We ask commenters to elaborate on whether the ATSC flag is the appropriate technological model to be used, or whether there are alternatives to the ATSC flag. We seek comment on the effectiveness of any such technological model in protecting digital broadcast content from improper redistribution. For example, we seek comment on the technological robustness of the ATSC flag and whether it can be upgraded or improved upon over time. If the ATSC flag is the best means of protection currently available, but it still has technical flaws, is it better to mandate the flag now and monitor it as technology develops, or to wait until a more effective means of digital broadcast copy protection is developed? Would a regulatory copy protection regime create and maintain industry incentives to continually innovate to improve the method of digital content protection?

5. With respect to the type of Commission regulations that would be appropriate in the digital broadcast copy protection area, we seek comment on whether a government mandate on the transmission side is needed. In other words, we seek comment on whether broadcasters and content providers should be required to embed the ATSC flag or another type of content control mark within digital broadcast programming, or whether they have sufficient incentive to protect such programming such that a government mandate is unnecessary.

6. On the reception side, we seek comment on whether the Commission should mandate that consumer electronics devices recognize and give effect to the ATSC flag or another type of content control mark. If so, we seek comment on whether this mandate should include devices other than DTV broadcast receivers and what the resulting impact would be on consumers. More specifically, the *BPDG Final Report* anticipates that digital broadcast copy protection will begin at the point of demodulation.[9]

[7] *Id.* at 18-21.

[9] *Id.* at 11.

We seek comment on whether this is an appropriate point for digital broadcast copy protection to begin in consumer electronics devices. We also seek comment on whether and how downstream devices would be required to protect the content. In addition, we seek comment on whether and how an ATSC flag or other system would work for broadcast stations carried on cable or direct broadcast satellite systems.

7. As to the means by which digital broadcast copy protection would be achieved, we seek comment on whether to require the use of specific copy protection technologies, such as those identified in Table A to the *BPDG Final Report*, in consumer electronics devices.[10] Table A identifies those copy protection technologies considered by BPDG for use in conjunction with digital outputs in consumer electronics devices, such as Digital Transmission Content Protection ("DTCP" or "5C") or High-Bandwidth Digital Content Protection ("HDCP").[11] However, BPDG members were unable to agree on the criteria by which a copy protection technology would be evaluated and approved for digital broadcast use and chose to reserve the topic for potential further discussion by a CPTWG parallel group.[12] We seek comment on how a particular technology would receive approval for use in consumer electronics devices for digital broadcast copy protection purposes. We also seek comment on identifying the appropriate entity to make an approval determination.

8. We also seek comment on the extent to which broadcast copy protection technologies raise privacy concerns and whether rules are needed to ensure that consumers' privacy interests are protected. In addition, we seek comment on whether there are First Amendment or any other constitutional issues that we should consider from the point of view of the industries involved or individual consumers.

9. Finally, we seek comment on the impact of the ATSC flag or other digital broadcast copy protection mechanism on consumers. The *BPDG Final Report* asserts that a broadcast flag system would not interfere with consumers' ability to make secure copies of DTV content for their personal use, either on personal video recorders or removable media.[13] Similarly, the *BPDG Final Report* states that the requirements to protect digital outputs should not interfere with consumers' ability to send DTV content across secure digital networks, such as "home digital network connecting digital set top boxes, digital recorders, digital servers and digital display devices."[14] We seek comment on these assertions. We also seek comment on the appropriate scope of protection to be accorded DTV broadcast content. In addition, some parties have raised concerns about the potential impact of a broadcast flag requirement on consumers' existing and future electronic equipment. We seek comment on these concerns, as well as the potential effect of a broadcast flag requirement on the development of new consumer technologies. Finally, we seek comment on the cost impact, if any, that a broadcast flag requirement would have on affected consumer electronics equipment.

III. JURISDICTION

10. We seek comment on the jurisdictional basis for Commission rules dealing with digital broadcast television copy protection. Is this an area in which the Commission could exercise its ancillary jurisdiction under Title I of the Act? We ask commenters to identify provisions of the Act that provide the Commission with authority to implement its ancillary jurisdiction. If the Commission has ancillary

[10] *Id.* at Schedule A.

[11] *Id.*

[12] *Id.* at 18-20.

[13] *Id.* at 12.

[14] *Id.*

jurisdiction over digital broadcast copy protection, are there any limits upon its scope? For example, does the Commission have authority to mandate the recognition of the ATSC flag in consumer electronics devices? We also ask commenters to identify any statutory provisions that might provide the Commission with more explicit authority to adopt digital broadcast copy protection rules. For example, do Sections 336(b)(4) and (b)(5) impact upon the Commission's ability to adopt digital broadcast copy protection regulations?

IV. ADMINISTRATIVE MATTERS

11. *Authority*. This *Notice of Proposed Rulemaking* is issued pursuant to authority contained in §§ 1, 4(i), 4(j), 303(r), 403 and 601 of the Communications Act of 1934, as amended.

12. *Ex Parte Rules – Non-Restricted Proceeding.* This is a non-restricted notice and comment rulemaking proceeding. Ex parte presentations are permitted, except during the Sunshine Agenda period, provided that they are disclosed as provided in the Commission's Rules. *See generally* 47 C.F.R. §§ 1.1202, 1.1203, and 1.1206(a).

13. *Accessibility Information.* Accessible formats of this *Notice of Proposed Rulemaking* (computer diskettes, large print, audio recording and Braille) are available to persons with disabilities by contacting Brian Millin, of the Consumer & Governmental Affairs Bureau, at (202) 418-7426, TTY (202) 418-7365, or at bmillin@fcc.gov.

14. *Comment Information.* Pursuant to Sections 1.415 and 1.419 of the Commission's rules, 47 C.F.R. §§ 1.415, 1.419, interested parties may file comments on or before **October 30, 2002**, and reply comments on or before **December 13, 2002**. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS) or by filing paper copies. See Electronic Filing of Documents in Rulemaking Proceedings, 63 Fed. Reg. 24121 (1998).

15. Comments filed through the ECFS can be sent as an electronic file via the Internet to <http://www.fcc.gov/e-file/ecfs.html>. Generally, only one copy of an electronic submission must be filed. If multiple docket or rulemaking numbers appear in the caption of this proceeding, however, commenters must transmit one electronic copy of the comments to each docket or rulemaking number referenced in the caption. In completing the transmittal screen, commenters should include their full name, U.S. Postal Service mailing address, and the applicable docket or rulemaking number. Parties may also submit an electronic comment by Internet e-mail. To get filing instructions for e-mail comments, commenters should send an e-mail to ecfs@fcc.gov, and should include the following words in the body of the message, "get form <your e-mail address>." A sample form and directions will be sent in reply. Parties who choose to file by paper must file an original and four copies of each filing. If more than one docket or rulemaking number appear in the caption of this proceeding, commenters must submit two additional copies for each additional docket or rulemaking number. Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail (although we continue to experience delays in receiving U.S. Postal Service mail). The Commission's contractor, Vistronix, Inc., will receive hand-delivered or messenger-delivered paper filings for the Commission's Secretary at 236 Massachusetts Avenue, N.E., Suite 110, Washington, D.C. 20002. The filing hours at this location are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes must be disposed of before entering the building. Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743. U.S. Postal Service first-class mail, Express Mail, and Priority Mail should be addressed to 445 12th Street, SW, Washington, D.C. 20554. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

16. *Regulatory Flexibility Act.* As required by the Regulatory Flexibility Act,[15] the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities of the proposals addressed in this Notice. The IRFA is set forth in Appendix A. Written public comments are requested on the IRFA. These comments must be filed in accordance with the same filing deadlines for comments on the Notice, and they should have a separate and distinct heading designating them as responses to the IRFA.

V. ORDERING CLAUSES

17. **IT IS ORDERED** that, pursuant to Sections 1, 4(i) and (j), 303, 403 and 601 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i) and (j), 303, 403, 521, **COMMENT IS HEREBY SOUGHT** on the analysis, questions, discussions and statements of issues in this Notice of Proposed Rulemaking.

18. **IT IS FURTHER ORDERED** that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Notice, including the IRFA, to the Chief Counsel for Advocacy of the Small Business Administration, in accordance with the Regulatory Flexibility Act.[17]

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

[15] *See* 5 U.S.C. § 603.

[17] *See* 5 U.S.C. § 603(a).

APPENDIX A
INITIAL REGULATORY FLEXIBILITY ANALYSIS

As required by the Regulatory Flexibility Act of 1980, as amended ("RFA"),[18] the Commission has prepared this Initial Regulatory Flexibility Analysis ("IRFA") of the possible significant economic impact on small entities by the policies and rules proposed in this Notice of Proposed Rulemaking ("Notice"). Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the Notice provided above in paragraph 15. The Commission will send a copy of the Notice, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration.[19] In addition, the Notice and IRFA (or summaries thereof) will be published in the Federal Register.[20]

A. Need for, and Objectives of, the Proposed Rules. The need for FCC regulation in this area is that the lack of digital broadcast copy protection has been identified as a key impediment to anticipated rate and scope of the transition for digital television ("DTV"). In the absence of a digital copy protection scheme preventing the unauthorized copying and redistribution of digital media, content providers have asserted that they will not permit high quality programming to be broadcast digitally. Without such programming, consumers may be reluctant to invest in DTV receivers and equipment, thereby delaying the DTV transition. While private industry negotiations have reached consensus on the technical "broadcast flag" standard to be implemented, ATSC Standard A65/A, agreement was not universally reached on compliance and robustness requirements to be associated with the flag's use.[21] Agreement was also not reached on enforcement mechanisms for digital broadcast copy protection. The Notice seeks comment on whether the Commission can and should mandate a regulatory copy protection regime for digital broadcast television. The objective of the Proposed Rules will be to facilitate the DTV transition.

B. Legal Basis. The authority for the action proposed in this rulemaking is contained in Sections 1, 4(i) and (j), 303, 403 and 601 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i) and (j), 303, 403, and 521.

C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply. The RFA directs the Commission to provide a description of and, where feasible, an estimate of the number of small entities that will be affected by the proposed rules.[22] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental entity" under Section 3 of the Small Business Act.[23] In addition,

[18] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. §§ 601-612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

[19] *See* 5 U.S.C. § 603(a).

[20] *See id.*

[21] ATSC Standard A65/A: Program and System Information Protocol for Terrestrial Broadcast and Cable (May 31, 2000) and Amendment 3 (Feb. 6, 2002). The "broadcast flag" is a redistribution control descriptor.

[22] 5 U.S.C. § 603(b)(3).

[23] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in 15 U.S.C. § 632). Pursuant to the RFA, the statutory definition of a small business applies, "unless an agency, after consultation with the Office of Advocacy of the SBA and after opportunity for public comment, establishes one or more definitions of such the term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.

the term "small Business" has the same meaning as the term "small business concern" under the Small Business Act.[24] A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration ("SBA").[25]

In this context, the application of the statutory definition to television stations is of concern. An element of the definition of "small business" is that the entity not be dominant in its field of operation. We are unable at this time to define or quantify the criteria that would establish whether a specific television station is dominant in its field of operation. Accordingly, the estimates that follow of small businesses to which rules may apply do not exclude any television station from the definition of a small business on this basis and are therefore over-inclusive to that extent.

An additional element of the definition of "small business" is that the entity must be independently owned and operated. We note that it is difficult at times to assess these criteria in the context of media entities and our estimates of small businesses to which they apply may be over inclusive to this extent.

Television Broadcasting. The proposed rules and policies could apply to television broadcasting licensees, and potential licensees of television service. The Small Business Administration defines a television broadcasting station that has no more than $12 million in annual receipts as a small business.[31] Television broadcasting consists of establishments primarily engaged in broadcasting images together with sound, including the production or transmission of visual programming which is broadcast to the public on a predetermined schedule.[32] Included in this industry are commercial, religious, educational, and other television stations.[33] Also included are establishments primarily engaged in television broadcasting and

[24] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register."

[25] 15 U.S.C. § 632.

[31] 13 C.F.R. § 121.201 (North American Industry Classification System ("NAICS") Code 513120).

[32] Economics and Statistics Administration, Bureau of Census, U.S. Department of Commerce, 1997 Economic Census, Subject Series – Source of Receipts, Information Sector 51, Appendix B at B-7-8 (2000).

[33] *Id.* *See* Executive Office of the President, Office of Management and Budget, Standard Industrial Classification Manual (1987), at 283, which describes "Television Broadcasting Stations (SIC Code 4833)" as:

> Establishments primarily engaged in broadcasting visual programs by television to the public, except cable and other pay television services. Included in this industry are commercial, religious, educational and other television stations. Also included here are establishments primarily engaged in television broadcasting and which produce taped television program materials.

NAICS Code 513120, by its terms, supercedes the former SIC Code 4833, but incorporates the foregoing inclusive definitions of different types of television stations. *See* Economics and Statistics Administration, Bureau of Census, U.S. Department of Commerce, 1997 Economic Census, Subject Series – Source of Receipts, Information Sector 51, Appendix B at B-7-8 (2000).

which produce programming in their own studios.[34] Separate establishments primarily engaged in producing programming are classified under other NAICS numbers.[35]

There were 1,509 television stations operating in the nation in 1992.[36] That number has remained fairly constant as indicated by the approximately 1,686 operating television broadcasting stations in the nation as of September 2001.[37] For 1992, the number of television stations that produced less than $10.0 million in revenue was 1,155 establishments.[38] Thus, the new rules could affect approximately 1,686 television stations; approximately 77%, or 1,298 of those stations are considered small businesses.[39] These estimates may overstate the number of small entities since the revenue figures on which they are based do not include or aggregate revenues from non-television affiliated companies.

Cable and Other Program Distribution. The SBA has developed a small business size standard for cable and other program distribution services, which includes all such companies generating $12.5 million or less in revenue annually.[40] This category includes, among others, cable operators, direct broadcast satellite ("DBS") services, home satellite dish ("HSD") services, multipoint distribution services ("MDS"), multichannel multipoint distribution service ("MMDS"), Instructional Television Fixed Service ("ITFS"), local multipoint distribution service ("LMDS"), satellite master antenna television ("SMATV") systems, and open video systems ("OVS"). According to the Census Bureau data, there are 1,311 total cable and other pay television service firms that operate throughout the year of which 1,180 have less than $10 million in revenue.[42] We address below each service individually to provide a more precise estimate of small entities.

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[34]Economics and Statistics Administration, Bureau of Census, U.S. Department of Commerce, 1997 Economic Census, Subject Series – Source of Receipts, Information Sector 51, Appendix B at B-7 (2000).

[35]NAICS Code 512110 (Motion Picture and Video Production); NAICS Code 512120 (Motion Picture and Video Distribution); NAICS Code 512191 (Teleproduction and Other Post-Production Services); NAICS Code 512199 (Other Motion Picture and Video Industries).

[36]FCC News Release No. 31327, Jan. 13, 1993; Economics and Statistics Administration, Bureau of Census, U.S. Department of Commerce, Appendix A-9.

[37]FCC News Release, Broadcast Station Totals as of September 30, 2001 (rel. Oct. 30, 2001).

[38]The amount of $10 million was used to estimate the number of small business establishments because the relevant Census categories stopped at $9,999,999 and began at $10,000,000. No category for $12 million existed. Thus, the number is as accurate as it is possible to calculate with the available information.

[39]We use the 77 percent figure of TV stations operating at less than $10 million for 1992 and apply it to the 2001 total of 1,686 TV stations to arrive at 1,298 stations categorized as small businesses.

[40] 13 C.F.R. § 121.201 (NAICS Code 513220). This NAICS Code applies to all services listed in this paragraph.

[42] Economics and Statistics Administration, Bureau of Census, U.S. Department of Commerce, 1997 Economic Census, Subject Series – Establishment and Firm Size, Information Sector 51, Table 4 at 50 (2000). The amount of $10 million was used to estimate the number of small business firms because the relevant Census categories stopped at $9,999,999 and began at $10,000,000. No category for $12.5 million existed. Thus, the number is as accurate as it is possible to calculate with the available information.

Cable Operators. The Commission has developed, with SBA's approval, our own definition of a small cable system operator for the purposes of rate regulation. Under the Commission's rules, a "small cable company" is one serving fewer than 400,000 subscribers nationwide.[43] We last estimated that there were 1,439 cable operators that qualified as small cable companies.[44] Since then, some of those companies may have grown to serve over 400,000 subscribers, and others may have been involved in transactions that caused them to be combined with other cable operators. Consequently, we estimate that there are fewer than 1,439 small entity cable system operators that may be affected by the decisions and rules adopted in this *Report and Order*.

The Communications Act, as amended, also contains a size standard for a small cable system operator, which is "a cable operator that, directly or through an affiliate, serves in the aggregate fewer than 1% of all subscribers in the United States and is not affiliated with any entity or entities whose gross annual revenues in the aggregate exceed $250,000,000."[45] The Commission has determined that there are 68,500,000 subscribers in the United States. Therefore, an operator serving fewer than 685,000 subscribers shall be deemed a small operator if its annual revenues, when combined with the total annual revenues of all of its affiliates, do not exceed $250 million in the aggregate.[46] Based on available data, we find that the number of cable operators serving 685,000 subscribers or less totals approximately 1,450.[47] Although it seems certain that some of these cable system operators are affiliated with entities whose gross annual revenues exceed $250,000,000, we are unable at this time to estimate with greater precision the number of cable system operators that would qualify as small cable operators under the definition in the Communications Act.

Direct Broadcast Satellite ("DBS") Service. Because DBS provides subscription services, DBS falls within the SBA-recognized definition of cable and other program distribution services.[50] This definition provides that a small entity is one with $12.5 million or less in annual receipts.[51] There are four licensees of DBS services under Part 100 of the Commission's Rules. Three of those licensees are currently operational. Two of the licensees that are operational have annual revenues that may be in excess of the threshold for a small business.[52] The Commission, however, does not collect annual revenue data for DBS and, therefore, is unable to ascertain the number of small DBS licensees that could be impacted by these proposed rules. DBS service requires a great investment of capital for operation, and we acknowledge, despite the absence of specific data on this point, that there are entrants in this field that may not yet have generated $12.5 million in annual receipts, and therefore may be categorized as a small business, if independently owned and operated.

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[43] 47 C.F.R. § 76.901(e). The Commission developed this definition based on its determinations that a small cable system operator is one with annual revenues of $100 million or less. *Sixth Report and Order and Eleventh Order on Reconsideration*, 10 FCC Rcd. 7393 (1995).

[44] Paul Kagan Associates, Inc., Cable TV Investor, Feb. 29, 1996 (based on figures for Dec. 30, 1995).

[45] 47 U.S.C. § 543(m)(2).

[46] 47 C.F.R. § 76.1403(b).

[47] Paul Kagan Associates, Inc., Cable TV Investor, Feb. 29, 1996 (based on figures for Dec. 30, 1995).

[50] 13 C.F.R. § 121.201 (NAICS Code 513220).

[51] *Id.*

[52] *Id.*

Home Satellite Dish ("HSD") Service. Because HSD provides subscription services, HSD falls within the SBA-recognized definition of cable and other program distribution services.[53] This definition provides that a small entity is one with $12.5 million or less in annual receipts.[54] The market for HSD service is difficult to quantify. Indeed, the service itself bears little resemblance to other MVPDs. HSD owners have access to more than 265 channels of programming placed on C-band satellites by programmers for receipt and distribution by MVPDs, of which 115 channels are scrambled and approximately 150 are unscrambled.[55] HSD owners can watch unscrambled channels without paying a subscription fee. To receive scrambled channels, however, an HSD owner must purchase an integrated receiver-decoder from an equipment dealer and pay a subscription fee to an HSD programming package. Thus, HSD users include: (1) viewers who subscribe to a packaged programming service, which affords them access to most of the same programming provided to subscribers of other MVPDs; (2) viewers who receive only non-subscription programming; and (3) viewers who receive satellite programming services illegally without subscribing. Because scrambled packages of programming are most specifically intended for retail consumers, these are the services most relevant to this discussion.[56]

Multipoint Distribution Service ("MDS"), Multichannel Multipoint Distribution Service ("MMDS") Instructional Television Fixed Service ("ITFS") and Local Multipoint Distribution Service ("LMDS"). MMDS systems, often referred to as "wireless cable," transmit video programming to subscribers using the microwave frequencies of the MDS and ITFS.[57] LMDS is a fixed broadband point-to-multipoint microwave service that provides for two-way video telecommunications.[58]

In connection with the 1996 MDS auction, the Commission defined small businesses as entities that had annual average gross revenues of less than $40 million in the previous three calendar years.[59] This definition of a small entity in the context of MDS auctions has been approved by the SBA.[60] The MDS auctions resulted in 67 successful bidders obtaining licensing opportunities for 493 Basic Trading Areas ("BTAs"). Of the 67 auction winners, 61 met the definition of a small business. MDS also includes licensees of stations authorized prior to the auction. As noted, the SBA has developed a definition of small entities for pay television services, which includes all such companies generating $12.5 million or less in annual receipts.[61] This definition includes multipoint distribution services, and thus applies to MDS licensees and wireless cable operators that did not participate in the MDS auction. Information available to us indicates that there are approximately 850 of these licensees and operators that do not generate revenue in excess of $12.5 million annually. Therefore, for purposes of the IRFA, we find there are approximately 850 small MDS providers as defined by the SBA and the Commission's auction rules.

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[53] 13 C.F.F. § 121.201 (NAICS Code 513220).

[54] *Id.*

[55] *Annual Assessment of the Status of Competition in Markets for the Delivery of Video Programming*, 12 FCC Rcd 4358, 4385 (1996) ("*Third Annual Report*").

[56] *Id.* at 4385.

[57] *Amendment of Parts 21 and 74 of the Commission's Rules with Regard to Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed Service and Implementation of Section 309(j) of the Communications Act – Competitive Bidding*, 10 FCC Rcd at 9589, 9593 (1995) ("*ITFS Order*").

[58] *See Local Multipoint Distribution Service*, 12 FCC Rcd 12545 (1997) ("*LMDS Order*").

[59] 47 C.F.R. § 21.961(b)(1).

[60] *See ITFS Order*, 10 FCC Rcd at 9589.

[61] 13 C.F.R. § 121.201 (NAICS Code 513220).

The SBA definition of small entities for cable and other program distribution services, which includes such companies generating $12.5 million in annual receipts, seems reasonably applicable to ITFS.[62] There are presently 2,032 ITFS licensees. All but 100 of these licenses are held by educational institutions. Educational institutions are included in the definition of a small business.[63] However, we do not collect annual revenue data for ITFS licensees, and are not able to ascertain how many of the 100 non-educational licensees would be categorized as small under the SBA definition. Thus, we tentatively conclude that at least 1,932 licensees are small businesses.

Additionally, the auction of the 1,030 LMDS licenses began on February 18, 1998, and closed on March 25, 1998. The Commission defined "small entity" for LMDS licenses as an entity that has average gross revenues of less than $40 million in the three previous calendar years.[68] An additional classification for "very small business" was added and is defined as an entity that, together with its affiliates, has average gross revenues of not more than $15 million for the preceding calendar years.[69] These regulations defining "small entity" in the context of LMDS auctions have been approved by the SBA.[70] There were 93 winning bidders that qualified as small entities in the LMDS auctions. A total of 93 small and very small business bidders won approximately 277 A Block licenses and 387 B Block licenses. On March 27, 1999, the Commission re-auctioned 161 licenses; there were 40 winning bidders. Based on this information, we conclude that the number of small LMDS licenses will include the 93 winning bidders in the first auction and the 40 winning bidders in the re-auction, for a total of 133 small entity LMDS providers as defined by the SBA and the Commission's auction rules.

In sum, there are approximately a total of 2,000 MDS/MMDS/LMDS stations currently licensed. Of the approximate total of 2,000 stations, we estimate that there are 1,595 MDS/MMDS/LMDS providers that are small businesses as deemed by the SBA and the Commission's auction rules.

Satellite Master Antenna Television ("SMATV") Systems. The SBA definition of small entities for cable and other program distribution services includes SMATV services and, thus, small entities are defined as all such companies generating $12.5 million or less in annual receipts.[71] Industry sources estimate that approximately 5200 SMATV operators were providing service as of December 1995.[72] Other estimates indicate that SMATV operators serve approximately 1.5 million residential subscribers as of July 2001.[74] The best available estimates indicate that the largest SMATV operators

[62] *Id.*

[63] SBREFA also applies to nonprofit organizations and governmental organizations such as cities, counties, towns, townships, villages, school districts, or special districts, with populations of less than 50,000. 5 U.S.C. § 601(5).

[68] *See LMDS Order,* 12 FCC Rcd at 12545.

[69] *Id.*

[70] *See* Letter to Daniel Phythyon, Chief, Wireless Telecommunications Bureau (FCC) from A. Alvarez, Administrator, SBA (January 6, 1998).

[71] 13 C.F.R. § 121.201 (NCAIS Code 513220).

[72] *See Third Annual Report*, 12 FCC Rcd at 4403-4.

[74] *See Annual Assessment of the Status of Competition in Markets for the Delivery of Video Programming*, 17 FCC Rcd 1244, 1281 (2001) ("*Eighth Annual Report*").

serve between 15,000 and 55,000 subscribers each. Most SMATV operators serve approximately 3,000-4,000 customers. Because these operators are not rate regulated, they are not required to file financial data with the Commission. Furthermore, we are not aware of any privately published financial information regarding these operators. Based on the estimated number of operators and the estimated number of units served by the largest ten SMATVs, we believe that a substantial number of SMATV operators qualify as small entities

Open Video Systems ("OVS"). Because OVS operators provide subscription services,[76] OVS falls within the SBA-recognized definition of cable and other program distribution services.[77] This definition provides that a small entity is one with $ 12.5 million or less in annual receipts.[80] The Commission has certified 25 OVS operators with some now providing service. Affiliates of Residential Communications Network, Inc. ("RCN") received approval to operate OVS systems in New York City, Boston, Washington, D.C. and other areas. RCN has sufficient revenues to assure us that they do not qualify as small business entities. Little financial information is available for the other entities authorized to provide OVS that are not yet operational. Given that other entities have been authorized to provide OVS service but have not yet begun to generate revenues, we conclude that at least some of the OVS operators qualify as small entities.

Electronics Equipment Manufacturers. Rules adopted in this proceeding could apply to manufacturers of DTV receiving equipment and other types of consumer electronics equipment. The SBA has developed definitions of small entity for manufacturers of audio and video equipment[81] as well as radio and television broadcasting and wireless communications equipment.[82] These categories both include all such companies employing 750 or fewer employees. The Commission has not developed a definition of small entities applicable to manufacturers of electronic equipment used by consumers, as compared to industrial use by television licensees and related businesses. Therefore, we will utilize the SBA definitions applicable to manufacturers of audio and visual equipment and radio and television broadcasting and wireless communications equipment, since these are the two closest NAICS Codes applicable to the consumer electronics equipment manufacturing industry. However, these NAICS categories are broad and specific figures are not available as to how many of these establishments manufacture consumer equipment. According to the SBA's regulations, an audio and visual equipment manufacturer must have 750 or fewer employees in order to qualify as a small business concern.[85] Census Bureau data indicates that there are 554 U.S. establishments that manufacture audio and visual equipment, and that 542 of these establishments have fewer than 500 employees and would be classified

[76] *See* 47 U.S.C. § 573.

[77] 13 C.F.R. § 121.201 (NAICS Code 513220).

[80] *Id.*

[81] 13 CFR § 121.201 (NAICS Code 334310).

[82] 13 CFR § 121.201 (NAICS Code 334220).

[85] 13 CFR § 121.201 (NAICS Code 334310).

as small entities.[86] The remaining 12 establishments have 500 or more employees; however, we are unable to determine how many of those have fewer than 750 employees and therefore, also qualify as small entities under the SBA definition. Under the SBA's regulations, a radio and television broadcasting and wireless communications equipment manufacturer must also have 750 or fewer employees in order to qualify as a small business concern.[87] Census Bureau data indicates that there 1,215 U.S. establishments that manufacture radio and television broadcasting and wireless communications equipment, and that 1,150 of these establishments have fewer than 500 employees and would be classified as small entities.[88] The remaining 65 establishments have 500 or more employees; however, we are unable to determine how many of those have fewer than 750 employees and therefore, also qualify as small entities under the SBA definition. We therefore conclude that there are no more than 542 small manufacturers of audio and visual electronics equipment and no more than 1,150 small manufacturers of radio and television broadcasting and wireless communications equipment for consumer/household use.

Computer Manufacturers. The Commission has not developed a definition of small entities applicable to computer manufacturers. Therefore, we will utilize the SBA definition of electronic computers manufacturing. According to SBA regulations, a computer manufacturer must have 1,000 or fewer employees in order to qualify as a small entity.[90] Census Bureau data indicates that there are 563 firms that manufacture electronic computers and of those, 544 have fewer than 1,000 employees and qualify as small entities.[91] The remaining 19 firms have 1,000 or more employees. We conclude that there are approximately 544 small computer manufacturers.

D. Description of Projected Reporting, Recordkeeping and other Compliance Requirements. At this time, we do not expect that the proposed rules would impose any additional reporting or recordkeeping requirements. However, compliance may require the manufacture of broadcast flag-compliant DTV receivers and other consumer electronics equipment. Compliance may also require broadcasters and/or content providers to include a content control mark within digital broadcast television programs. While these requirements could have an impact on consumer electronics manufacturers, broadcasters and content providers, such impact would be similarly costly for both large and small entities. We seek comment on whether others perceive a need for extensive recordkeeping and, if so, whether the burden would fall on large and small entities differently.

E. Steps Taken to Minimize Significant Impact on Small Entities, and Significant Alternatives Considered. The RFA requires an agency to describe any significant alternatives that it has

[86] Economics and Statistics Administration, Bureau of Census, U.S. Department of Commerce, 1997 Economic Census, Industry Series – Manufacturing, Audio and Video Equipment Manufacturing, Table 4 at 9 (1999). The amount of 500 employees was used to estimate the number of small business firms because the relevant Census categories stopped at 499 employees and began at 500 employees. No category for 750 employees existed. Thus, the number is as accurate as it is possible to calculate with the available information.

[87] 13 C.F.R. § 121.201 (NAICS Code 513220).

[88] Economics and Statistics Administration, Bureau of Census, U.S. Department of Commerce, 1997 Economic Census, Industry Series Manufacturing, Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing, Table 4 at 9 (1999). The amount of 500 employees was used to estimate the number of small business firms because the relevant Census categories stopped at 499 employees and began at 500 employees. No category for 750 employees existed. Thus, the number is as accurate as it is possible to calculate with the available information.

[90] 13 C.F.R. § 121.201 (NAICS Code 334111).

[91] Economics and Statistics Administration, Bureau of Census, U.S. Department of Commerce, 1997 Economic Census, Industry Series – Manufacturing, Electronic Computer Manufacturing, Table 4 at 9 (1999).

considered in reaching its proposed approach, which may include the following four alternatives: (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.

As indicated above, the Notice seeks comment on whether the Commission can and should mandate a regulatory copy protection regime for digital broadcast television in order to facilitate the DTV transition. This regime may require the manufacture of broadcast flag-compliant DTV receivers and other consumer electronics equipment. It may also require broadcasters and/or content providers to include a content control mark within digital broadcast television programs. At this writing, no alternatives to our proposals herein have been mentioned because we anticipate no differential impact on smaller entities. However, we welcome comment on modifications of the proposals if based on evidence of potential differential impact.

F. Federal Rules Which Duplicate, Overlap, or Conflict with the Commission's Proposals. None.

CONCURRING STATEMENT OF COMMISSIONER MICHAEL J. COPPS

Re: In the Matter of Digital Broadcast Copy Protection, Notice of Proposed Rulemaking

The Commission today takes two major steps to encourage the nation's long-delayed transition to digital television. With this last agenda item, we move to resolve the continuing industry deadlock over inclusion of technologies to provide digital broadcast copy protection. In the previous item, we addressed the important issue of requiring digital tuners in our television receivers.

I have often said that the transition to digital television involves a number of moving parts. Each of these parts -- the broadcasters, the cable industry, set-top box manufacturers, receiver manufacturers and content producers – spent a lot of time looking to the others to take the first step. Five years ago, the Commission established a schedule for broadcasters' transition to DTV, with the presumption that the other parts of the transition would follow. Instead, the transition has been delayed, partly by the lack of digital content, partly by the lack of sets capable of receiving digital signals. No one is wholly to blame for the delays. Like Pogo, we have met the enemy and it is… us. All of us. The Commission can be faulted for lack of judgment on what it would take to get the job done, and just about every segment of the industry can be faulted for delay and obfuscation along the way.

The history is not pretty, but it is just that -- history. That was then and this is now. "Now" is Congress telling us to get the transition done. "Now" is important segments of the industry finally stepping up to the plate and investing large amounts of money to make the transition happen. "Now" is Chairman Powell pushing all the players to commit the resources and the effort to get us, finally, across the finish line. "Now" is logjam-breaking time. And I believe many of the players understand this and should be commended for it.

Given digital media's susceptibility to piracy, the issue of content protection must be resolved before broadcasters will make new, innovative and expensive digital content widely available. Yet a decade of discussion among the players has yielded no solution. It is time for a solution. Today's Commission action should make this plain for all to understand. It should also make clear to various industry stakeholders that they have only a small window to reach agreement on the technicalities involved or they will face a solution imposed upon them in the near-term future.

I concur here because I would have preferred us to reach today a determination on the matter of the Commission's authority to impose a solution. I believe a strong case can be made that the statute provides us with such authority. I fear this question could cost us precious additional time, when we could have resolved it at the outset. I caution my colleagues not to let this become an issue that impedes our final action.

Although there is not a majority here to resolve the issue of the Commission's authority, I am nevertheless pleased that we are moving forward today to solicit stakeholder input on a number of other questions pertinent to the Commission's rulemaking on digital broadcast copy protection. I look forward to a full record that includes the views of all interested stakeholders, particularly consumer groups. Finally, permit me to reemphasize the urgency which I believe attends these digital television transition issues and my hope that the record can be expeditiously compiled so that we can proceed to final action within a very few months, at most.

Mr. SMITH. Mr. Attaway?

STATEMENT OF FRITZ E. ATTAWAY, EXECUTIVE VICE PRESIDENT GOVERNMENT RELATIONS AND WASHINGTON GENERAL COUNSEL, MOTION PICTURE ASSOCIATION OF AMERICA (MPAA)

Mr. ATTAWAY. Mr. Chairman, Mr. Berman, Members of the Committee, thank you very much for allowing me to appear before you today.

I am incapable of describing the issue of the broadcast flag and certainly in 5 minutes, so we have a visual demonstration for you today that I will try to run through very quickly. This is something we did yesterday on the Internet. I have seen Bill Gates try to do a live Internet demonstration and fail, so I wasn't about to risk that today. But this is something that we did yesterday to demonstrate the broadcast flag issue.

You can find unauthorized copies of all your favorite television shows even today by simply going to one of the many popular so-called P2P file trading networks, like KaAaA in this case. KaZaA boasts 195 million users worldwide. In this particular search, we found that 4.2 million users were online at the moment that we were online and they were trading 875 million files.

To begin the search, we simply clicked the "search" button. We selected video files of the type that we are looking for. If we want episodes of "The Simpsons," we simply type in "The Simpsons" in the search field, click the "search now" button, and wait a minute. In this case, 197 files became available on the first pass. Now, we could have done other passes and found additional files of "The Simpsons," but there were 197 files available on the first pass, some of them in non-English versions, particularly the French. [Laughter.]

Mr. ATTAWAY. The French seem to like "The Simpsons."

Also, if you want to access the popular ABC program "Alias," you simply type in "Alias" in the search field, click the "search" button, and wait a minute, and we found 139 files available for download, again, on the first pass.

If you are interested in the Fox popular program "24," you can also easily find that. In our session yesterday, we had to search through a great deal of hard-core pornography and advertisements for free condoms before we could get to "24," but we eventually found it.

To download it, you simply click the "download" button and you will see in a second what you get.

Now, these are shows that do not recoup their production cost on network exhibition. They have to go into syndication. They have to go into the foreign marketplace in order to recoup their cost and for the studio to make a profit. What you are seeing is activity that preempts those sequential markets and makes it—eventually will make it impossible for these shows to break even, much less make a profit.

Well, that is the show. In the few seconds I have left, let me make three very brief points. First of all, as you have just seen, there is a problem. This is not a theoretical issue. This is not something that we are worried about in the future. This is something

that exists today. As band width gets larger, as compression technology improves, this problem will get much worse.

The second point is that the broadcast flag that we are talking about does one thing and one thing only: It prevents redistribution over wide-area networks like the Internet. It does not prevent copying in any way, manner, shape, or form. It will have absolutely no effect on non-protected content like home movies.

And finally, the flag's impact on technology will be negligible. Consumer devices already will have protected inputs and outputs to be able to render protected content on cable, satellite, Internet, and from other protected sources. What the broadcast flag really means is that digital television content will be directed through those protected inputs rather than unprotected inputs.

The issue here is not whether high-quality broadcast television will be available for redistribution. The issue is whether high-value broadcast television will be available at all over the air or whether it will be forced to migrate to protected distribution sources like cable and satellite. Thank you very much.

Mr. SMITH. Thank you, Mr. Attaway.

[The prepared statement of Mr. Attaway follows:]

PREPARED STATEMENT OF FRITZ E. ATTAWAY

Mr. Chairman, members of the Subcommittee, thank you for giving me this opportunity to appear at this very important hearing.

American consumers, and indeed consumers around the world, are entering a golden age of access to audiovisual content. Never before have consumers had so much choice in terms of the movies available to them, and the means by which they are delivered—theaters, VHS, DVD, cable, satellite, broadcast TV, Internet, advertiser supported, subscription, pay-per-view, video-on-demand—the list is long and growing. The same is true with regard to television programming.

The engine that is driving us into this golden age of consumer choice is technology. The motion picture industry has embraced technology, as witnessed by the DVD, to create new markets and bring new choices to consumers. However, technology brings challenges as well as opportunities. The greatest challenge is to maintain control over the distribution of movies and TV shows in order to recoup the cost of production and spur investment in new projects.

Fortunately, technology itself is a big part of the solution to illegal distribution. Digital rights management technology is being developed that will enable secure delivery of movies and TV shows to consumers and exponentially expand consumer choice. The high-tech industry is our partner in this endeavor. Contrary to the perception of some, the high-tech and movie industries are not enemies. To the contrary, we share a common interest in providing consumers new viewing opportunities, which will create vast new markets for both consumer technology and content.

That is not to say that the movie and high-tech industries are always in total agreement. We have different perspectives, which often result in conflicting ideas on how to achieve common goals. We are working together on a number of fronts to develop consensus solutions to content protection problems, some of which may require legislative implementation.

The greatest challenge facing the motion picture industry today is the widespread trafficking of movies and television shows on the Internet, mostly through so-called peer-to-peer "file sharing." The term "file sharing" is a popular euphemism for copying, which in the case of copyrighted motion pictures and TV programming, is stealing. The sound recording industry is being decimated by this insidious practice.

DRM technology is now being employed by movie distributors to prevent unauthorized reproduction and redistribution of digital works. However no DRM technology is available 100% of the time, or 100% effective when it is available. Some leakage is inevitable. And therein lies the problem. When movies leak out of a protected environment, whether through hacking of DRM measures, theft of unprotected copies, camcording off theater screens, or other means, they can be instantly made available to literally tens of millions of people over the Internet, instantaneously and with little or no degradation of quality.

Movie studios are actively engaged in finding ways to stem this leakage, such as by providing greater security for prints and promotional screeners, and use of more sophisticated DRM measures. They are also heavily involved in enforcement of their rights under the copyright law, not only through infringement actions, but through consumer education and working with colleges and universities to develop codes of conduct for students using digital networks.

One source of leakage that will continue to grow if not addressed is digital broadcast television. Because it is transmitted in the clear, digital broadcast television programming is subject to an extraordinarily high risk of unauthorized redistribution over digital networks such as the Internet. The threat of such wide-scale piracy, will lead content creators to cease making their high-value programming available for distribution over digital broadcast television. Because the DTV transition would be seriously threatened by such a development, with consequent harm to consumers, the Federal Communications Commission has initiated a proceeding aimed at adopting narrowly-targeted regulations mandating protection of digital broadcast television. These proposed regulations are based upon a cross-industry consensus developed by the Broadcast Protection Discussion Group, an informal, open forum created for the purpose of finding a solution to the broadcast redistribution problem.

The BPDG proposed implementation of a Broadcast Flag as the most appropriate and efficient solution for the protection of digital broadcast television. Use of the Flag would allow broadcasters to offer content creators the same protection against Internet redistribution that conditional access systems like cable and satellite can provide. The Broadcast Flag would not be required to be embedded in content, in the event that a content provider wishes to make its broadcast content available for wide redistribution.

The Broadcast Flag solution regulates a minimum number of products. Only consumer products containing modulators or demodulators would be directly subject to FCC requirements necessary for the protection of unencrypted digital terrestrial broadcast content against unauthorized redistribution. These devices include DTV receivers and demodulator cards for PCs. Other "downstream" devices would have to substantially comply with the terms of license agreements with authorized digital output technology. Demodulators are the most appropriate gateway to commence protection, because prior to demodulation the content is not in usable form; after demodulation, the content may be in usable form. Regulation of modulators is necessary in order to prevent other content protection systems from being undermined by the very rules necessary to protect digital broadcast television content. The FCC would also regulate a limited number of products that are capable of receiving protected but unprocessed content, or digital broadcast content passed in a certain way within a computer. Equipment used by satellite, cable, and other professional retransmitters of digital broadcast content would be exempt from the requirements. However, such retransmitters would be required to ensure that retransmitted digital broadcast content is protected once received by the consumer's set-top box.

The Commission would authorize a list of specified protection technologies, known as "Table A," for use with digital broadcast content. Without such a list, manufacturers would lack guidance concerning implementation of the requirements and disputes over their implementation would inevitably arise. Given the ever-changing nature of technology, narrow criteria drafted today specifying certain features for protection technologies may quickly become obsolete. Thus, we have asked the Commission to adopt flexible, market-based criteria for Table A technologies, to be administered by the Commission.

Contrary to what has been argued by some Broadcast Flag opponents, the Broadcast Flag solution will not prevent consumers from making an unlimited number of physical recordings of DTV programs, or from distributing protected digital broadcast content within the personal digital network environment, defined as the home or similar local environment. And the Flag WILL NOT intrude in any way on consumer privacy. Furthermore, implementation of the Broadcast Flag solution will have no impact on existing consumer equipment. The cost impact on affected equipment going forward will be insignificant.

Given the fact that protection of digital broadcast content is necessary to implement a robust DTV transition, the Commission has ample authority to act under existing legislation. The Commission has express statutory authority under 47 U.S.C. § 336 to adopt rules to prevent unauthorized redistribution of digital terrestrial broadcast television programming. Furthermore, the Commission has ancillary jurisdiction to adopt such rules under Titles I and III of the Communications Act.

Although there is a high level of consensus within the content, consumer electronics and information technology (computer) industries on the need for a Broadcast Flag, there are disagreements on the details of its implementation and in a few cases opposition to the Flag in principle. Much of the opposition to the Flag in prin-

ciple is based on misconceptions of what it would do, like restrict home copying. (As stated earlier, the Flag would not hinder physical copying and enjoyment in the home in any way.) Other concerns address such issues as timing and standards for implementation. MPAA and a host of other Broadcast Flag supporters, including broadcasters, labor and professional organizations, advertisers and sports interests, recently addressed these concerns in reply comments to the FCC, pointing out that:

1. The current availability of the highest quality programming for free over-the-air broadcast is not sustainable if adequate protections are not adopted in parallel with the rapid expansion in broadband connections and DTV equipment.
2. Without the Broadcast Flag, the market will respond to the increasing threat of unauthorized redistribution by migrating high-quality programming away from broadcast television to other, protected distribution channels.
3. Illegal file trafficking in audiovisual works is currently like illegal trafficking in music was six years ago; but as technology improves, television programming will be as susceptible to piracy as music is now, unless a solution is already in place.
4. The threat of unauthorized redistribution over wide area networks is qualitatively different from that of any other previous technology, such as the VCR; networks such as the Internet allow the instantaneous, effortless, and costless worldwide distribution of copies with none of the restrictions or effort that applied to VCRs or other, physical recording technologies.
5. Those who are interested in negotiating a solution on this particular topic have already done so, and further delay is unnecessary; indeed, delay will allow device manufacturers to create a huge legacy of non-compliant products that may stymie the Broadcast Flag.
6. The Broadcast Flag is the only solution that preserves high-quality programming on broadcast television.
7. Existing equipment in consumer's homes will not be affected by the implementation of the Broadcast Flag.
8. Adopting the Broadcast Flag would not inaugurate a new regime of content protection, but rather would afford digital broadcaster the same ability to protect content that other distribution channels enjoy.
9. The criteria for Table A in the Joint Proposal are more objective than those proposed by any other party.
10. The Broadcast Flag does not at all restrict the number of copies a consumer may make of broadcast television.
11. Claims that the Broadcast Flag would prevent such uses as the transfer of content within the home, or the incorporation of broadcast content into a school project, or would require content owner approval for any such actions, are simply mistaken.
12. The Broadcast Flag does not apply to every device, and does not apply to the equipment of Internet Service Providers; it applies only to DTV receivers, DTV modulators, and a very limited number of related DTV consumer products.
13. The Broadcast Flag achieves the minimum level of restrictions necessary to prevent worldwide unauthorized redistribution of broadcast content.
14. The Broadcast Flag regulation would not pose any challenge to open source developers not already posed by the very concept of secure applications generally.

Implementation of the Broadcast Flag is a necessary, but by no means complete, solution to the problem of Internet trafficking in infringing movies and other copyrighted material. Another key component of this problem is analog reconversion, which refers to the conversion of protected digital content to analog, and its reconversion to digital, which wipes out all known digital rights management technologies.

As stated earlier, we are working with the high tech community to find mutually agreeable solutions, and some of these solutions, like analog reconversion, will probably require legislative implementation. However time is of the essence. Consumers are anxious to take advantage of new viewing opportunities that require very substantial investment by content suppliers in new business models that cannot succeed in an environment of unbridled piracy. We urge the Congress to take an active interest in solving these problems, to encourage all parties to find practical solu-

tions, and where purely marketplace solutions are not effective or cannot be implemented, to adopt such legislation as is necessary to achieve a golden age of consumer choice.

Again, I thank you for this opportunity to present the views of the motion picture industry.

Mr. SMITH. Mr. Black?

STATEMENT OF EDWARD J. BLACK, PRESIDENT AND CHIEF EXECUTIVE OFFICER, COMPUTER AND COMMUNICATIONS INDUSTRY ASSOCIATION (CCIA)

Mr. BLACK. Mr. Chairman, Mr. Berman, Members of the Subcommittee, thank you for the opportunity to testify today. I look forward to working with you in the future on these very many important issues that are important to our industry that are the jurisdiction of the Subcommittee.

CCIA represents a diverse group of companies, including hardware, software services companies from many parts of the computer, communications and Internet sectors. Our member companies have annual revenues of approximately $300 billion a year. Intellectual property and copyright have played an integral role in the development and success of our industry. Our members support strong copyright protection.

Copyright is a useful, but not sufficient, tool to accomplish one of our industry's more fundamental goals, preserving the vitality of a dynamic, innovative industry capable of providing the public with great products and services. CCIA has long understood that the greatest benefits flow from a balanced copyright system that ensures that the legitimate interests of all parties in our techno-ecosystem are respected, including the customer and end user.

We recognize that many different parts of industry also have diverse interests and needs. We recognize that all of us who are content creators face challenges and opportunities in the rapidly changing world in which we live. We believe very real problems of illegal copying exist and need to be addressed.

Looking at piracy alone, however, and especially at one aspect of it reminds us of the parable of the wise man and the elephant. We have come to realize that some of our copyright and piracy problems are subsets of the larger challenge facing us all: The recalibration of our systems, laws, business models, and thinking to ensure that in a very rapidly changing digital world, legitimate interests of all relevant interests and parties receive a reasonable and fair place in a new equilibrium. In trying to reach this new equilibrium, a few of the other values that must be considered along with copyright and the First Amendment are the preservation of competition, the innovative process, efficiency, deregulation, cost-benefit equity, consumer welfare, and productivity.

One of these values is embodied in DMCA section 12(c)(3). That section reflects a policy and decision by the Congress that consumer electronics and computer products not be required to respond to particular technological measures. This was a correct decision by the Congress and one that should not be overturned. It should certainly not be overturned by a grant of jurisdiction to the FCC and then subsequently, in essence, a retransfer of jurisdiction from the FCC to a small group of industry players.

We believe strongly in the value of the marketplace as a determinant of which technology and which business models will succeed. We believe in an open private sector consensus standards process. We do not think creating a whole new regime is necessary or desirable, and we do not think centralized planning in the area of technology is the preferred course. We fear not just the growth of industrial policy in this area per se, but of a lopsided industrial policy that gives control over a large innovative industry to a smaller, important, but vulnerable, one in the name of hypothetical benefits.

We are concerned that under the guise of piracy protection, this power may be used for anti-competitive purposes. The proponents of the broadcast flag argue that because the flag is intended to limit retransmission rather than copying, the flag does not implicate fair use. Fair use, however, is not only limitation of the copyright owner's reproduction right, it is a limitation on all of the copyright owner's exclusive rights under section 106, including the distribution right, the performance right, and the display right. Thus, fair use could be implemented when the consumer is technologically prevented from retransmitting digital content.

In short, there is more to fair use than time shifting. There also is space shifting and a host of transformative uses that involve both time shifting and space shifting. At CCIA, we are particularly concerned about preserving these transformed abuses. One of the great virtues of digital technology is the ability it gives consumers to become content providers and content distributors, and just like the established entertainment companies, these consumers incorporate elements of preexisting works in their content. This creativity by consumers should be welcomed and encouraged by Congress. It makes the populus more literate and computer savvy. Unfortunately, the broadcast flag restricts this creativity.

The entertainment industry has already conceded that the broadcast flag by itself will not stop retransmission of digital television over the Internet. Accordingly, they have initiated industry discussions concerning the so-called analog hole, which presumably will lead to even more proposed legislation.

Moreover, the broadcast protection discussion group itself has already demonstrated mission creep. It was formed to address the protection of feature film and broadcast on television, yet now, it is concerned with protecting revenue streams and syndication rights for regular television programs.

Significantly, fair use has a First Amendment dimension. Less than 2 months ago, the U.S. Supreme Court stated that fair use was one of the copyright law's "built in First Amendment accommodations." Thus, any statute or regulation that has the effect of limiting fair use treads on constitutionally suspect ground.

We believe that in addition to the enormous technological and competitive issues raised, the BPDG proposal would create huge costs, both economically and otherwise, for consumers and for the technology industry. We, therefore, urge the FCC to reject this proposal. We would urge the Congress to proceed very carefully in this area.

Thank you very much for the opportunity to testify today.

Mr. SMITH. Thank you, Mr. Black.

[The prepared statement of Mr. Black follows:]

PREPARED STATEMENT OF EDWARD J. BLACK

INTRODUCTION

The Computer & Communications Industry Association is a group of large, small and mid-sized technology companies committed to the proposition that open markets, open systems and open networks are critical to an efficient marketplace.

Over the years, we have been strong supporters of pro-competitive measures such as the Federal Communications Commission's *Computer II* ruling. From our beginnings as active participants in proceedings against AT&T and IBM, through our current role as an appellant in *U.S.* v. *Microsoft* and intervenor in the case against Microsoft at the European Commission, we have recognized that technical regulation can be the monopolist's favorite cudgel. The ability to control industry standards—especially those mandated by government—assures that those who cannot otherwise prevail in the marketplace can capture and maintain a dominant position. We therefore have profound concerns over the proceeding at the FCC, which implicates standards setting processes, technology development, and copyright.

Copyright is, by definition, a balance of the rights of creators and freedom of expression protected by the First Amendment. Copyrights and patents are state grants of limited monopoly. They are justified under U.S. law only so long as they "promote the progress of science and useful arts, by securing for *limited times* to authors and inventors the exclusive right to their respective writings and discoveries." (emphasis added) Copyright and its limitations—traditionally matters beyond the purview of the Federal Communications Commission—are the very heart of the matter now before the Commission.

Copyright, patent and trademark law are central to the computer and telecommunications industry. Our members retain countless intellectual property rights, and benefit from the creativity and inventions of others. Thus, we have participated in a large number of proceedings at the intersection of information technology and copyright, including the seminal *Sega Enterprises* v. *Accolade*, which affirmed the right of software makers to reverse engineer others' works for the purposes of developing interoperable products. In more recent years, we have remained deeply enmeshed in issues surrounding intellectual property. We, along with a handful of other industry organizations, helped negotiate key sections of the 1996 World Intellectual Property Organization (WIPO) treaty on online copyright in Geneva, as well as the Digital Millennium Copyright Act of 1998 (DMCA), which implemented the treaty in the United States. In addition to our work in copyright, we recently helped fight for—and win—the elimination of virtually all controls over the export of encryption technology. Encryption is vital to all widely deployed copy-control technologies in current use, including those technologies that make up the broadcast-flag proposal now before the Commission.

Given the knowledge we have gained from past and present endeavors, we oppose any attempt to enshrine into law the broadcast flag proposal, including any effort to promulgate the proposed Compliance and Robustness rules, which have been proposed to govern the flag's implementation. As we outline below, the proposed rules will distort the professed purpose of the marker, frustrate consumer rights and expectations and further delay an already troubled transition to digital broadcast television. Worse still, the proposal will fail to prevent the illegal copying its backers say it can stop.

THE BROADCAST FLAG

Origins of the Broadcast Protection Discussion Group's broadcast flag proposal

Content providers claim to have put forth this controversial proposal chiefly to avoid indiscriminate copying and redistribution of their works over the Internet. That remains part of the report's goals. Unfortunately, the co-chairs, together with certain members of the content industry, have permitted many other objectives to creep into this proposal. In reality, the proposals found in the Compliance and Robustness Requirements document would effectively ban any retransmission not approved by the major motion picture studios. While the studios might desire such a regime, this unprecedented degree of control is a denial of consumers' rights and expectations, in conflict with fundamental First Amendment rights, and ultimately a futile endeavor.

What the Flag Does

The "broadcast flag" as such is no more than a few bytes of information appended to a digital-television signal. It performs no work, contains no "intelligence." It is

simply notice that tells a compliant device that the broadcast is copyrighted. The flag indicates the creator's wishes as to whether it may be copied, and how it may be used. There is no controversy as to the form or essential function of this flag, and the flag is already part of the ATSC standards for digital television. The controversy, rather, revolves around over the controls Hollywood wishes to assert over devices and content through this flag, and how these controls will function

In discussions before the Broadcast Protection Discussion Group, Hollywood's representatives argued that all devices capable of receiving content containing the flag should be restricted so that leakage to the Internet would be impossible, or nearly so. Content owners assert, via analogy to current controversies over file sharing, that piracy of free, over-the-air digital television programs will be sufficiently rampant as to justify the reworking of essentially all consumer electronics that can handle a digital-television signal or convert analog to digital. We outline below why this analogy is inappropriate, and why such a proposal makes little sense from the viewpoint of law, technology or economics.

LEGAL IMPEDIMENTS TO ADOPTION OF THE BROADCAST FLAG PROPOSAL

The proposed broadcast flag abridges First Amendment rights

The proponents of the broadcast flag argue that because the flag is intended to limit retransmission rather than copying, the flag does not implicate Fair Use. Fair Use, however, is not only a limitation on the copyright owner's reproduction right. It is a limitation on all of the copyright owner's exclusive rights under Section 106, including the distribution right, the performance right, and the display right. Thus, Fair Use could be implicated when a consumer is technologically prevented from retransmitting digital content.

Many high school students, for example, have been taught in their schools how to put together very sophisticated power point presentations, including video clips. Their homework assignments sometimes require them to create such presentations at home or in the school library, and then to present them in class to the teacher and their fellow students. Imagine that a student wanted to create a presentation on how television situation comedies portray the relationship between parents and children, including clips from popular situation comedies and television dramas. The broadcast flag would not interfere with the creation of such a presentation on a home computer. But how would the student get the presentation to school? The broadcast flag presumably would prevent her from e-mailing it to her teacher, or burning a CD. If she had a laptop she might be able to bring the laptop to school, but this option would not be available if she only had a desktop.

In short, there is more to Fair Use than time shifting. There also is space shifting, and a host of transformative uses that involve both time shifting and space shifting. At CCIA, we are particularly concerned about preserving these transformative uses, like the student project described above. One of the great virtues of digital technology is the ability it gives consumers to become content providers and content distributors. And just like the established entertainment companies, these consumers incorporate elements of pre-existing works in their content. This creativity by consumers should be welcomed and encouraged by Congress. It makes the populace more literate and computer savvy. Unfortunately, the broadcast flag restricts this creativity.

Proponents of the broadcast flag assert that their proposal is so limited that it will not unduly restrict consumer creativity. But the history of intellectual property laws in general, and copyright law in particular, teach us that this is just the first step. Today the entertainment companies seek restrictions on retransmission outside the home network. Tomorrow they will seek limitations on retransmission within the home network. And the day after tomorrow they will demand prohibitions on fast-forwarding through commercials on taped TV shows. Indeed, the entertainment industry has already conceded that the broadcast flag by itself will not stop retransmission of digital television over the Internet. Accordingly, they have initiated industry discussions concerning the so-called "analog hole," which presumably will lead to more proposed legislation. Moreover, the Broadcast Protection Discussion Group itself has already demonstrated "mission creep." It was formed to address the protection of feature films broadcast on television, yet now it is concerned with protecting the revenue stream from syndication rights for regular television programs.

Fair Use is often disparaged in these chambers as either a quaint legacy of a bygone era, or a form of disguised piracy. It is neither. To be sure, many infringers claim that their copying was permitted under the Fair Use doctrine, but courts have quickly dismissed these frivolous arguments. In fact, Fair Use is as important today as it was before the advent of the computer, and it is as important to businesses as it is to consumers. Congress itself couldn't function without Fair Use. Everyday,

Congressional offices make thousands of photocopies of newspaper articles. Fair Use permits this. Everyday, Congressional offices download copyrighted material from the Internet. Once again, Fair Use permits this. Indeed, the simple act of replying to an email could be an infringement, but for Fair Use.

Significantly, Fair Use has a First Amendment dimension. Less than two months ago, the U.S. Supreme Court stated that Fair Use was one of the copyright law's "built-in First Amendment accommodations." Thus, any statute or regulation that has the effect of limiting fair use treads on constitutionally suspect ground.

The American tradition, innovation and common sense argue against heavy-handed regulation of the Internet

For years, the Commission, the White House, Congress, and even the Supreme Court have noted that information technology and the Internet are simply too young—and fast moving—to be tied down by strict government regulation. Time and time again, federal officials have rejected the idea that the Internet can be closely regulated. Yet, this is precisely the direction in which some would have the FCC and Congress head.

CCIA, therefore, has urged the FCC to act with caution during their proceeding on the broadcast flag, and would urge the Subcommittee and Congress to proceed in a similar fashion. The mere existence or even approval of the multi-bit signal known as the broadcast flag is not at issue before the FCC or Congress. Rather, the Commission is being asked to decide what, if anything, devices must do when confronted with such a flag.

If the FCC or Congress decides to act on the proposal, we believe it should limit its action to recognizing the ATSC flag as a national standard for signaling a work's status under copyright law, but no more. Were the policymakers to follow the wishes of the content community's most extreme proponents and require certain technologies to respond to this flag in a certain way, it would severely skew a nascent marketplace. Such a broadcast flag standard would freeze innovation, and grant control of a vital standard to a handful of companies in the content industry. Such an action would be anticonsumer, antibusiness, anticompetitive and fundamentally at odds with the policy objectives set forth by Congress in promoting the advancement of HDTV.

We believe the FCC and Congress should uphold the most basic tenets of the Constitution, and trust the market to produce solutions at least as good as those that a handful of motion picture studios would seek to impose upon the rest of society.

The Broadcast Flag violates the balance that Congress has struck

The Broadcast Flag is merely the beginning of Hollywood's efforts to unravel the careful balance achieved by Congress just four years ago in the DMCA. This legislation was the highest priority of the content industry during the 105th Congress, and Hollywood executives and lobbyists exerted tremendous pressure to push the legislation through. CCIA and others in the technology and consumer electronics industry were reluctant to grant such broad new powers to copyright owners, but entered into good-faith negotiations to seek a workable balance of interests.

A key compromise reached during DMCA negotiations was § 1201(c)(3) of the Act, the "no mandate" provision, which specifies that equipment manufacturers are not required to design new digital telecommunications equipment, consumer electronics and computing products to respond to any particular copy protection technology. Implementation of the BPDG co-chairs' proposal would renege on this critical agreement, and fundamentally alter the balance Congress sought in the DMCA. The BPDG co-chairs' report would require a broad mandate upon demodulators, modulators, and, through the mandatory license agreements of the "approved technologies" all electronic devices, computer hardware, components and software used to process, record and view high-definition television content. Any such mandate should be based on a genuine, broad consensus achieved following a careful examination of all of the practical consequences and public policy repercussions. The current proposal fails to satisfy any of these requirements.

Government action must be fair and equitable

Over the years, various interest groups have attempted to control the Internet. From those who would seek to ban from the network anything someone could call "indecent," to overreaching law enforcement agencies that have tried to limit online privacy and anonymity, more than a few groups have determined that their parochial interests outweighed the interests of society as a whole.

The Supreme Court cited just such interests in its groundbreaking ruling in *Reno* vs. *ACLU*. Confronting a section of the Telecommunications Act of 1996 that attempted to ban all public display of indecency from the Internet, the Court ruled swiftly and surely. Congress, the Court found, could not convert the entirety of the

World Wide Web into something suitable for children. The First Amendment, the Court found, forbade such restrictions on the rights of the rest of society.

The threat to free speech is not as sweeping in this instance, but nonetheless, questions of balance are vital. As we note above, the Robustness and Compliance Requirements of the Co-Chairs proposal have failed to protect Fair Use and invite only more interference with it via futile attempts to "fix" the so-called analog hole and constraints on peer-to-peer technologies.

HISTORICAL EXPERIENCE OF COPY CONTROLS

The music industry's experience is largely irrelevant to HDTV

Proponents of the Co-Chairs' report assert that DTV will soon be "Napsterized," or plagued with the same problems of widespread copying now faced by record companies. While it is simple to find some parallels between MP3 files and HDTV broadcasts, the analogy breaks down under examination. The basic properties of MP3s vs. those of High-Definition television govern basic laws of the marketplace and consumer behavior.

MP3 files, like the music one buys on a Compact Disc at a record store, are digital. But those same files occupy a tiny proportion of the space needed by conventional CD recordings. Even the highest-quality (and thus least compact) MP3 files average a mere four megabytes per three-minute song, or roughly 60 megabytes per 15-song album. A conventional audio CD, by contrast, consumes roughly 10 times as much space, or 600 megabytes per album. The difference between the two capacities is fundamental and grounded in a basic reality: the vast majority of consumers have neither time, opportunity, hard-disk space nor bandwidth to download music—legally or not—when a full album would take up nearly a half a gigabyte. Thus, they must use MP3 file formats to compress the data into a manageable size.

But as with all compression, this ease of use comes at a price. MP3 sound quality is significantly lower than that of full-fidelity CDs. Thus, we believe it is misleading to assert that digital technology offers "perfect" reproduction of audio and video works. Rather, digital technology offers perfect reproduction only of the version of the recording that is placed on the network in the first place.

The 10-to-1 compression of MP3 is impressive, but ultimately results in significant loss of sound quality readily apparent to anyone with a stereo of even middling quality. For this reason, MP3 players now available on the market are overwhelmingly aimed at portable devices and not at the home stereo market; the sound quality is simply too low for more serious uses. The low quality of MP3 recordings puts into jeopardy the proposition that widespread file sharing poses an immediate threat to all recordings sold at retail. Likewise, the laborious chore of downloading files from peer-to-peer networks (connections often fail), checking their quality ("pirate" MP3s are often badly compressed, or compressed far beyond the limits of good sound quality), assembling those files and then burning them to disk (the process can take an hour or more) puts a real limit on the number of people who would rather undertake this onerous task than buy the recording.

We know that the record industry asserts that illegal copying of their wares accounts for their falling sales. Others suggest that there are other possible causes, including the current economic slowdown, the industry's release of far fewer titles and their elimination of singles, the end of cassette production, broadcast media consolidation, and less grooming of new talent. A full examination of the recording industry's woes is beyond the scope of this hearing. Nonetheless, the supposed causes of the record studios' financial slump—MP3 reproduction—is only partially relevant in the face of staggering bandwidth requirements of digital television. Thus, we question in the first place the aptness of comparing the real problems of the slumping record industry to the supposed difficulties of movie studios that are recently concluded their largest and most profitable sales year in history.

The Broadcast Flag proposal ignores our industry's 25-year history of combating illegal copying.

Finally—and perhaps most importantly—we would like to refer to the decades of experience our industry has had with illegal duplication of software. We learned long ago that we can create some impediments to unauthorized copying. But we also learned that modern DRM technology is mostly successful in keeping honest people honest. We also have learned that the more we restrict how our customers can use our products, the more likely they are to be annoyed. Indeed, our earlier attempts at copy control chiefly taught hackers how to crack inherently insecure systems. The result was an "arms race" of software developer vs. hacker.

That arms race at first did little more than deny users the ability to make backup copies or perform other innocuous tasks. Later, it taught good hackers how to

be better ones. With time, there arose a particularly corrosive attitude among consumers. Some users began to think that stealing software was somehow permissible, since—in their mind—producers treated customers poorly and interfered with their expected use of the products. It is small wonder, then, that the vast majority of software makers dropped the fight.

Today, software developers and their representatives routinely pursue, litigate against and assist in the prosecution of commercial infringers. Although illegal copying imposes costs on all software users, swift legal action puts a damper on such activity. At the same time, we know that illegal copying is largely a crime of opportunity. When given the chance to buy software at reasonable prices through convenient online kiosks or stores, consumers will generally purchase software products through legal, authorized distribution channels. The software business, like all businesses, eventually comes down to trusting the vast majority of customers.

The co-chairs and those who agree with them—Hollywood, in particular—have chosen not to trust consumers. They now threaten not to make their goods generally available without onerous copy protection measures. The record companies, in particular, have refused to make their goods available online at prices that reflect the vastly lower costs of online distribution, or in places consumers find convenient. They have also refused to "unbundle" their content to allow consumers to purchase a single song at a proportionate price rather than an entire album. Consumers are now also faced with purchasing music and visual media embedded with draconian DRM technology that, threatens to become obsolete, and restrict their rights and expectations with regards to time- and space-shifting. As a result, many otherwise honest consumers have gravitated towards the flexible reproduction and distribution offered by online file-sharing networks.

Now, alarmed by the record industry's own, predictable failure to stop unauthorized copying, Hollywood comes to the FCC and Congress for the blessing of still another ill-conceived copy-control scheme. The studios believe that, all evidence to the contrary, the broadcast flag will stop copyright infringement from occurring this time around. The Commission and Congress should reject this argument as a basis for implementation of the Broadcast Flag proposal, notwithstanding the many adverse consequences that would clearly result from the plan.

SHORTCOMINGS OF THE BROADCAST FLAG PROPOSAL AS A TECHNOLOGY STANDARD

Compounding this tension is another problem: The BPDG, despite its long efforts, produced no actual technology standard for the implementation of the broadcast flag. The prospect of adapting technologies approved by the MPAA and a handful of others to devices outside the local-area-network topology, for instance, remains only a dream. The FCC, therefore, is being told it must treat a mere wish list as though it were technological fact.

The Fair Use that was so crucial in *Sega* and other forms of lawful use of copyrighted works cannot be regulated by a mathematical algorithm or technological device. Fair Use is that use which is not authorized by the creator but it nonetheless legal as determined by the courts. These determinations are inherently subjective, and often controversial, and must normally be resolved on a case-by-case basis. Any solution that does not allow for consumers' continued enjoyment of the full range of uses permitted under existing precedent—as well as those uses that come to fall under the protection of copyright law—will diminish the rights of copyright users and upset the careful balance that has existed for hundreds of years.

This matter is obviously important for consumers, and their need to access *legally* the body of other works for personal use is clear. Ph.D. candidates who need to use copyrighted HDTV footage for a thesis on popular culture, proud parents who want to e-mail digital video of their child's soccer game, or corporate executives who want to watch video stored on an office computer while traveling, consumers, governments, and businesses alike need access to these works for their personal, non-commercial use. None of these things would be possible under the Co-Chairs proposal. And while proponents will argue that none of these things is expressly forbidden, the reality is we see no viable technology that can both allow these actions and comply with the proposal.

Fair Use is not just a right enjoyed by consumers. Neither is it limited to rival software developers who want to produce game cartridges for other companies' players. Fair Use is intended to benefit the entirety of society. Fair Use, far from being a plaything of the ivory tower, is a concept that has run through our entire system of copyright since the time that it was established by the Founders. The more we limit fair use, the less likely we will enjoy the benefits of the creativity and innovation that are now possible under our intellectual property system. The more we dictate standards, the less room we have for broad accommodation and market-based

solutions. Indeed, the broadcast flag proposal seems destined to create a cartel of content and technology producers that will decide who may prosper and who will not.

CONCLUSION

As representatives of some of America's largest producers of copyrighted material, we know first hand the importance of protecting what one owns. But our experience and knowledge of the law tell us that there are limits to the control we may expect over copyrighted materials. As a matter of technology and law, the Broadcast Flag proposal is fatally flawed.

The digitization of increasing amounts of our cultural heritage follows precisely the revolution through which the rest of society has passed. We as a society have responded to that change by creating new ways of doing business, of governing and living, of buying and selling copyrighted materials.

Not all are happy with this change. Like so many established powers, they now want to enlist the government in fighting a rear-guard action against the future. We urge the Members of the Subcommittee to reject this call to arms.

Mr. SMITH. Ms. Peters, let me direct my first question to you, but on the way there, say that I felt like your written testimony read like it was written by a judge, and I actually mean that as a compliment. [Laughter.]

Mr. SMITH. It was a very good analysis of the case at hand.

Ms. PETERS. Thank you very much.

Mr. SMITH. You obviously believe, as a lot of people do, that content providers have a legitimate concern. You also think we need to accommodate fair use, and I don't disagree with that. But you spoke generally a few minutes ago, as well as in your written statement, about generalities. Can you be more specific? Can you give us examples of, for instance, some unauthorized redistribution activities that you feel would go beyond fair use?

Ms. PETERS. I just want to correct one thing. I really didn't say that the broadcast flag proposal had to accommodate fair use. What I said is——

Mr. SMITH. You said the solutions need to accommodate fair use.

Ms. PETERS. Right. If the solution was there, then you have to make sure you get it right.

Mr. SMITH. Right.

Ms. PETERS. The problem with fair use is there is no exact answer, and that is actually the beauty of it. Usually, when you know the limits of what is going to be an exception, for example, performance of a work in a classroom, you actually exempt that out. What fair use does is on a case-by-case basis that may change over time, you apply the factors. So I actually think it is very difficult to build fair use——

Mr. SMITH. Let me ask you, then, a specific question. Suppose a consumer made a copy of a TV broadcast and physically mailed it to a friend. That would be permissible, I assume?

Ms. PETERS. Technically, under the Sony decision, the making of a copy for time shifting purposes is okay. What you seem to be going to is a personal copy, but then the personal copy goes to the friend.

Mr. SMITH. Right.

Ms. PETERS. I would say that it is not that clear that it is, in fact, fair. It is probably clear that copyright owners would not challenge that with regard to a particular——

Mr. SMITH. What if it was e-mailed to a friend?

Ms. PETERS. E-mailed to a friend, one friend? The bottom line for me is I think it is technically an infringement, but it is one that would not be enforced.

Mr. SMITH. Not be enforced, okay. Fair enough. Thank you, Ms. Peters.

Mr. Ferree, let me ask you a technical question, and it is this. Do you think it is possible for the FCC to arrive at a limited broadcast flag solution that does not impact copyright law and that takes into consideration concerns of consumer electronics industries that a broadcast flag will stifle competition?

Mr. FERREE. Yes.

Mr. SMITH. Okay, that is fairly reassuring. [Laughter.]

Mr. SMITH. I am not going to ask you any more. I am glad for the short answer.

Mr. FERREE. No, I——

Mr. SMITH. Really, I am serious.

Mr. FERREE. Okay.

Mr. SMITH. That was a good answer. The comment period ended a couple of weeks ago, a little over 2 weeks ago. When do you expect—I am not going to presume you are issuing rules, but when do you expect to reach a decision whether or not to make a ruling?

Mr. FERREE. Well, that is hard to predict, Mr. Chairman. We have just begun to go through the record. It is quite an extensive record. We received something over 6,000 comments in that proceeding alone, and they do—the comments——

Mr. SMITH. What is the average period of time you generally wait between when the comment period is closed and when you would decide whether to issue a ruling or not?

Mr. FERREE. Oh, that can vary greatly.

Mr. SMITH. You are just going to give a specific answer.

Mr. FERREE. I will give you as specific answer as I can get. I would think if the FCC decided to go forward with a flag implementation of some sort, without commenting on what that might look like, I would think it would be done this year.

Mr. SMITH. Okay. How about the next 3 months? Six months? You can't even be that specific?

Mr. FERREE. I—I would not hazard a guess. I am sorry.

Mr. SMITH. If you can't, you can't. Thank you, Mr. Ferree.

Mr. Attaway, do you think that there are other options besides the broadcast flag, watermarking and encryption at the source that might work or work as well? Do you believe the broadcast flag is the only practical solution, then, or——

Mr. ATTAWAY. We believe it is the only practical solution. The only other way of dealing with this problem that we are aware of is for broadcasts to encrypt their signals, which has enormous legacy problems for consumers, legacy equipment problem. The broadcast flag solution that we have recommended eliminates any legacy equipment problems for consumers. The legacy risk is all placed on us, and that is why it is so important that the FCC act quickly, because every day, more legacy devices are coming into the marketplace that will not recognize the flag, and so the retransmission problem will continue until those legacy devices transition out of the marketplace.

Mr. SMITH. Mr. Attaway and Mr. Black, I have some additional questions in a few minutes and we will get to those a little bit later on.

The gentleman from California, Mr. Berman, is recognized for his questions.

Mr. BERMAN. Thank you, Mr. Chairman.

Mr. Attaway, Mr. Black's testimony as well as the CCIA's FCC submission keeps talking about Hollywood and Hollywood and I thought they were going to break out into song in a moment. But you seem to think that only the Hollywood studios support the broadcast flag, that this notion of trying to develop some form of a consensus is not present in the effect to get the broadcast flag. Is that true or do you have allies on this?

Mr. ATTAWAY. It is not true, and if you see the comments filed with the FCC, you see that everyone involved in the free over-the-air broadcast business, from content suppliers to television stations to advertisers to guilds, everyone involved in this activity supports the broadcast flag because everyone realizes that without the flag, high-value content is going to migrate to protected delivery systems like cable and satellite and free over-the-air television as we know it today will be a thing of the past.

Mr. BERMAN. In your written testimony, you state that the broadcast flag wouldn't prevent the incorporation of broadcast content into a school project. Mr. Black seems to disagree with you. He states that the broadcast flag would effectively prevent a child from using clips of DTV programming in a school project because it would prevent the child from e-mailing that project or burning it onto a CD. Could you reconcile your comments with his?

Mr. ATTAWAY. Well, the broadcast flag would certainly not prevent Mr. Black's child from burning a copy of the project containing elements of television shows onto a CD. The broadcast flag does not prevent copying at all, as I stated earlier.

With today's technology, it would prevent the student from e-mailing that project because a secure system does not yet exist for e-mailing. But as soon as that technology is developed, and I believe it will be, then that would be made possible, as well. The only thing that the flag is designed to do is to prevent the mass redistribution of television programs on wide-area networks like the Internet.

Mr. BERMAN. Mr. Black, you note that many of your members have strong IP interests of their own and support IP protection. One of CCIA's members is Streamcast Networks, the corporate owner of the peer-to-peer file trafficking service Morpheus. Streamcast Networks is clearly concerned about protecting its own IP, as it copyrights its website and it has many trademarks, including one on the Morpheus logo.

At the same time, Morpheus software has enabled and continues to enable its users to commit literally billions of copyright infringements, including massive copyright infringement of TV programming. Even though Morpheus could reengineer its software to disable copyright infringements, it has refused to do so. So while your members protect their own IP, it appears that at least a couple of them actually profit from the infringement of copyrights and TV programming. Doesn't this lead to the conclusion that some of your

members are not really concerned about protecting copyrighted DTV programming?

Mr. BLACK. Mr. Berman, if any members of mine are found in a judicial process—and there is a lawsuit going on right now—to have as a core part of their business practice the violation of law, they will not be members of mine. As a matter of fact, Microsoft at the moment is not a member of mine, given their anti-competitive behavior across a wide range. We will not——

Mr. BERMAN. Do they want to be?

Mr. BLACK. Probably not at the moment. [Laughter.]

Mr. BLACK. But we basically—I stand by our statement. Our companies are a wide range of companies. If—you are making presumptions about conduct which will be—is being litigated. When it is litigated, we will respond accordingly. We do not try to look at every company and every practice, and I think there are a lot of companies in various parts of the entertainment industry that at times have been found in violation of some aspect of law or are under consent decrees, et cetera. So a trade association does not try to do that. However, like I say, if there was a formal finding, we would act.

Mr. BERMAN. My point wasn't about who or who shouldn't be in your association, nor was I trying to be the jailer. I was simply trying to point out that some people who talk about desiring to protect IP, at least as the facts appear to me, live by trying to violate intellectual property protections. That was my only point.

Mr. BLACK. I am sure that is right, and I think some people who talk a lot about fair use aren't very committed to helping fair use along, either.

Mr. BERMAN. I am sure that is true.

Mr. SMITH. Thank you, Mr. Berman.

The gentleman from Florida, Mr. Keller, is recognized for his questions.

Mr. KELLER. Thank you, Mr. Chairman, and Mr. Attaway, let me start by asking you a few questions about this broadcast flag. Do you have any reason to believe that the broadcast flag is going to make TV sets or DVD players more expensive?

Mr. ATTAWAY. No. The broadcast flag technology itself is just a bit which is freely available. There is no patent on it. So there is no cost at all for using the broadcast flag bit. Now, complying with the flag will require a technology to be added to devices that receive and demodulate DTV broadcasts, but that technology, we are talking about pennies.

Mr. KELLER. Will this broadcast flag restrict the home recording of DTV?

Mr. ATTAWAY. Absolutely not, in no way.

Mr. KELLER. Do you think the broadcast flag ultimately will benefit consumers, and if you think that, tell me why.

Mr. ATTAWAY. Absolutely, it will benefit consumers because it will allow free over-the-air broadcast television stations to continue to have access to high-value content, content where the owners of that content must protect it against redistribution in order to maintain its value. The broadcast flag will prevent this content from migrating to secure delivery systems like cable, satellite, and

eventually the Internet. It simply levels the playing field for free over-the-air broadcasts.

Mr. KELLER. Okay, thank you.

Mr. Black, let me turn to you. Now, as I understand it, there are many P2P developers who already advertise filters for pornography and viruses and bogus files. I assume that P2P, peer-to-peer developers like Streamcast could, without any Government regulation, also design software to limit trafficking in unauthorized copyrighted works, including TV programs. Do you believe they should?

Mr. BLACK. Peer-to-peer is a fascinating technology, and I think there are some misunderstandings about it. The reality is that the original Internet backbone is P2P technology. It is used widely for instant messaging, ICQ, video conferencing, Telnet, which is very important remote log-on capability used in TCP/IP networks, a lot of intra-corporate file transfers, data storage——

Mr. KELLER. But rather than a history of it, do you think they have the ability to develop their own software to limit trafficking in authorized copyrighted works, and if they do, do you think they should?

Mr. BLACK. I believe—certainly. We do not try to limit what software people develop. If there is a market for that and it is desirable, I have no problem developing software that does not violate any existing laws and computer security, et cetera. That would be fine. Our goal is really not to tell companies where to go invest in research and build products. What we are trying to preserve is exactly that vitality that the companies have the capability and the freedom to innovate.

Mr. KELLER. Well, let me get at a question that I think Mr. Berman was trying to get at. If most users go on Morpheus to download pirated versions of movies and music and TV shows, et cetera, isn't it fair for us to assume that the CCIA has a vested interest in opposing the flag and, indeed, any other solutions to peer-to-peer privacy?

Mr. BLACK. Well, we certainly have a vested interest in opposing the flag on behalf of all of the companies that have $300 billion worth of revenue, which does not come from Morpheus. Yes, there are very many legitimate reasons that all of my companies have some questions about the flag. Some may have more than others. But it is a position, and Morpheus is a company that joined only last year. It is a small member. It plays a very—in fact, our position on these issues were developed prior to that membership. So the assumption, I think, that maybe you are trying to get at is not accurate.

I should point out that in terms of the 6,000 comments received, the overwhelming number of those have serious criticisms, if not outright opposition to the flag, and in almost all of the other high-tech trade associations in the industry have likewise weighed in with very serious questions about this proposal, again, if not outright opposition——

Mr. KELLER. Did you say $300 million or $300 billion? What would you say the revenue is that your guys are getting?

Mr. BLACK. About $300 billion a year annual revenues.

Mr. KELLER. Okay. Mr. Attaway, what do you think about that response? Do you think there is a $300 billion reason that they are

opposing the broadcast flag and any other solutions to peer-to-peer privacy?

Mr. ATTAWAY. I do not, and quite frankly, I can't give you a good explanation of why they are so steadfastly opposing the flag. Getting back to your earlier question about cost, this is not an issue of whether television receiving devices are going to have to incorporate new technology. These devices already are incorporating the kind of technology that will respond to the flag, like the so-called 5(c) technology, and that is because cable, satellite, Internet, other delivery systems are providing protection to content that must be reacted to by consumer devices in order for those consumers to watch the programs on cable, satellite, et cetera.

The real difference here—the real issue here is whether over-the-air broadcast content should be directed through secure inputs or unsecure inputs, and obviously, our position is that it should be the former.

Mr. KELLER. Thank you. My time has expired, Mr. Chairman.

Mr. SMITH. Thank you, Mr. Keller.

The gentlewoman from Texas, Ms. Lofgren, is recognized.

Ms. LOFGREN. Not from Texas.

Mr. SMITH. Oh, I am sorry—— [Laughter.]

Mr. SMITH.—the gentlewoman from California.

Ms. LOFGREN. It is the other nation state.

Mr. SMITH. We will be happy to claim you, however.

Ms. LOFGREN. Thank you. [Laughter.]

Ms. LOFGREN. First, let me thank you, Mr. Chairman, and also Mr. Berman, for holding this hearing. I think it is useful and I think it is an important subject.

Clearly, as envisioned, the broadcast flag is just a piece of information. It doesn't itself protect anything. So the real question is, what happens next and what kind of controls will be put in place by the devices that catch signals? Will we control innovation of devices? Will consumers be allowed to skip commercials in shows they record, just like they can go to the bathroom and not have to watch those commercials today?

I think, also, this is not really before us, but I was interested to see your presentation, Mr. Attaway, and what I heard, 190 million users online at the day you went in. I did mention to counsel here that if we had a compulsory license, your industry would be rolling in dough, more than you would ever dream of making if that were in place. [Laughter.]

Ms. LOFGREN. But that is not before us. I was grateful that you did not show us the free condom ads and the other non-copywritten material that you found there. [Laughter.]

Ms. LOFGREN. You know, I have an interest—there are copyright issues, fair use issues that have been identified, but I think there are innovation issues that we would be remiss in not identifying, and I noted, Mr. Attaway, in your written testimony, you talk about the FCC to authorize a list of protection technologies known as Table A.

What that makes me wonder is whether new technologies that are invented, that are not on Table A, would need to seek some kind of authorization from presumably the FCC before they would be allowed to be marketed, and who would decide whether new

technologies would be allowed to be invented and to be marketed, and what kind of objective criteria would be applied to the technology world in sort of Government control of invention relative to Table A? Have you given that thought?

Mr. ATTAWAY. Absolutely. There are a number of avenues to become—to get on Table A, to be an accepted technology. Several of them are marketplace standards. One of them is the standard of being equally effective in protecting the content. Some people criticize that standard as being too vague. We think it is an appropriate standard because it does exactly what you are suggesting should be done, and that is leaving the field open to develop new technology and to be as flexible as possible. So we think that is the appropriate standard and because it is so broad and open, we do not think it will have any negative impact on the development of new technology.

Ms. LOFGREN. Could I turn on that same subject, then, to Mr. Black? I know several comments have been directed your way relative—I didn't realize that Morpheus was actually a member of your association because the members I know are like Sun Microsystems and people who are huge employers and developers of technology in America. What are the implications, in your judgment, for the innovations, technology innovations that buoy the signal of your sector of the economy, relative to the comments of Mr. Attaway as well as his written testimony and the proposal?

Mr. BLACK. Certainly, Congresswoman. Under the broadcast flag proposal that has been submitted, there are—there is a great deal of control that is vested into a certain small group of entities. There are four ways in which new technology can be approved under Table A. I won't go into all the details, but the three of them basically are major studios and some small number of electronics companies being required to give approval.

The one that Fritz often uses, or Mr. Attaway uses to say, oh, but that is—it is not all under our control, basically requires a bureaucratic process of review. The standards are vague and unclear. The process is likely to be quite lengthy and we do not see how that is a reasonable option for developing new technology. In addition, the 5c proposal, the broadcast flag proposal, allows companies who are in a really dominant position here to have subsidiary licensing agreement, the terms of which are private, and we are talking about proprietary technologies here which are sealed.

And so if you are a new player trying to get into this game, you do not know the standards by which you will be judged. That is not an open entry mechanism. That does not encourage it. And on top of that, you go through a process, most of the avenues of which are controlled by your competitors or a small group of cartels and players who may have very limited business relationships. This is very unlikely to create, foster the kind of investment in innovative energy that we have come to rely on in our industry.

Mr. SMITH. Thank you, Ms. Lofgren.

The gentlewoman from Pennsylvania, Ms. Hart, is recognized for her questions.

Ms. HART. Thank you, Mr. Chairman. I am sorry I keep running in and out of the hearing.

I guess my question still has to do with what is seen as fair use, and I am especially interested in Ms. Peters. In your testimony, you refer to consumer expectations as having been a driving force behind the broadcast flag proposal since the proposed regime would permit unlimited copies for personal use, both inside and outside the home network. Would you see these consumer expectations as beyond, though, the scope of fair use?

Ms. PETERS. Absolutely. They actually have no limit on the number of copies that can be made. We don't have a personal use exemption in this country. In Europe, where they have more personal use exemptions, they also have levies that compensate copyright owners.

One thing that wasn't clear to me is whether or not you transfer the copy of—the question that was asked earlier by your Chairman was, what if I make a copy and I e-mail it to my friend, and technically, I don't think that if you are talking about a digital copy, so now you have a digital copy that you have, your friend has, and you go down the line, and personally, I don't think that that falls within fair use, but no court has exactly looked at that case.

Ms. HART. Okay. You make the case about the digital copy versus another kind of copy——

Ms. PETERS. Analog.

Ms. HART.—and is it because it is so easy to have a perfect copy in the digital format that that is of a concern?

Ms. PETERS. That is part of it. It is also part of it that you can send it throughout the world instantaneously so that millions and millions of people can also have it. That is one copy, but then that friend can send it to his friend, and around the world it goes.

Ms. HART. Thanks. Is there a—go ahead.

Ms. PETERS. and that is without any compensation to the copyright owner.

Ms. HART. Right, and that is a problem.

Ms. PETERS. Well, if one person does it, it is fine. If everybody does it, then it wipes out the market.

Ms. HART. But if you do what I have been doing, which is taking random polls of random young interns throughout the Capitol and asking them, when was the last time they bought a CD——

Ms. PETERS. Oh, I have no doubt——

Ms. HART.—the answer is they don't know where the CD store is, so——

Ms. PETERS. I am aware of that. I just came from UC-Berkeley. [Laughter.]

Ms. HART. That is a good point. Does anybody else want to comment on that particular issue? Yes, Mr. Black?

Mr. BLACK. We are using some terms in ways that haven't been clearly defined. The focus of broadcast flag and all the discussion motivating it has been high-definition television and bringing that on board. Digital, I can take a home movie and digitize it. I can take an analog and digitize it. We have got to be careful about using digital TV as an acronym. What we are talking about, the presentation we saw here was not connected to the Internet. Had that been—and don't use me, use the testimony submitted to the FCC from the MIT Media Labs person—that in order to have a 2-hour movie transmitted, we are talking 36 hours in high-definition

over high-speed cable network connection. This is not a problem that is on our plate today.

Ms. HART. Okay.

Mr. BLACK. There are several assumptions that have been made about what—oh, well, technology is going to fix it, and they are talking about compression, they are talking about band width, they are talking about various solutions that we are going to deal with some of the portability issues. Well, they are saying there is going to be some technological solution that is going to deal with these, but right now, you can't do what they say they are being hurt by. They don't have evidence that it is, in fact, taking place.

Nobody can predict the future, but our best guess—not of high-definition television. High-definition programming is not—we have seen no evidence and none in the record of a problem that is there. Is there a lot of transmission of low-definition analog programming? Absolutely, and there is a problem there. The broadcast flag isn't focused on that. That is not what it is designed to deal with. And in testimony that has been given and speeches I have heard they don't maintain that the broadcast flag solves all the problems that I am pointing to. It does not, and they have not maintained that.

Ms. HART. Let me give Mr. Attaway a quick rebuttal there before I run out of time.

Mr. ATTAWAY. I can certainly agree with Mr. Black's last statement. The broadcast flag does not solve everything, but it does solve one aspect of the overall problem, and just because it is not 100 percent effective is certainly no reason not to adopt it.

And going back to your initial question about fair use, the broadcast flag is not intended to replicate the copyright law or even be a substitute for the copyright law. The broadcast flag is being proposed as appropriate communications policy to preserve over-the-air broadcast television, not unlike the 1970's when the FCC adopted redistribution regulations for cable television, signal carriage and syndicated exclusivity. Certainly copyright implications, no question about that, but the basic policy was to preserve free over-the-air broadcasting. The same exists today.

Ms. HART. Okay, thank you. I see I am out of time. Thank you, Mr. Chairman.

Mr. SMITH. Thank you, Ms. Hart.

The gentleman from Virginia, Mr. Boucher, is recognized for his questions.

Mr. BOUCHER. Thank you very much, Mr. Chairman. I want to begin by complimenting you on scheduling a timely and interesting hearing on very pertinent subject matter. I think it is highly appropriate for this Committee to be examining the issues, particularly copyright issues and fair use questions that are associated with the possible implementation of the broadcast flag.

I have not taken a position on this matter yet and I am still in search of answers to a number of questions, and perhaps the witnesses who are here today can help provide some of those answers.

Mr. Black, let me begin with you. We have heard Mr. Attaway say that in the absence of a broadcast flag, the producers of high-value digital content probably would make that content cable and satellite exclusive and would not make it available for over-the-air

television broadcast in the fear that, in the absence of the broadcast flag, someone could take that program in the home and upload it to the Internet and then distribute it to people around the country or around the world, and so there's a real fear of piracy on the part of the Motion Picture Association and its member companies and they are basically saying that if they don't have the broadcast flag, people who depend on over-the-air TV are not going to get high-value digital programming.

I represent a rural area. I have 27 counties and cities in the Western part of Virginia. Most of my constituents, unlike the American public generally, do not have access to cable television. Some, very wisely, I might add, have decided to subscribe to satellite television, but probably a majority of my constituents still depend upon over-the-air TV in order to get their programming. I think nationwide, the number may be something like 20 percent or even less, but in my district, it is a far higher number.

And so the argument that Mr. Attaway is making has real resonance with someone like me, assuming that it is accurate, but I want to try to get some clarification about whether or not it is truly accurate. I think you might have a view about this and I would be interested to hear it. Is his argument accurate? Would over-the-air television be denied high-value content in the absence of a broadcast flag?

Mr. BLACK. Well, I am not going to try to overly specifically predict the behavior of certain companies, but there is a multi—there are tens of millions of people out there with broadcast TV desires and I believe that there will be content produced, that there are business models that will work for that. I do not see it at all probable, in fact, that the content would not move. In fact, we have seen in recent years an increase, a substantial increase in high-quality television programs being developed, and if there is a problem, which I guess I do dispute, it certainly hasn't seemed to have stopped the increase in those numbers today.

But I think it is important to look, when we talk about the impact, that this is Hollywood's most profitable year, and yet we have a situation where DVDs—everybody understands the DVD code has been compromised. The security is available. Yes, they are available on the Internet. Nevertheless, we are at record numbers of sales of DVDs. Maybe not everybody is doing it, but there is a trade-off between opportunity which the Internet and the entire infrastructure of the Internet provides. It is a massive expansion of marketing opportunity.

Are there going to be some parallel costs to that? There will be an increase in fair use as a result of that. There unfortunately will also be an increase in unfair use piracy. But it is net that we are looking at and the issue being raised is, is this a threat, and so far, at the moment, DVD sales are record numbers and Hollywood is at its best year ever.

And from the technology standpoint, which you notice Fritz did not try to rebut my 36 hours and the MIT statement, and if you look at the FCC record, many people in the technology industry, major companies, Philips, other trade associations, have all also done tests and show those kind of huge numbers for downloading—

and frankly, the problems in transmission infrastructure are huge—the idea of staying online for 36 hours.

So the threat is certainly nowhere—it is years out if it is real. Only if certainly technological developments increase substantially——

Mr. BOUCHER. So you don't see it as being an immediate problem?

Mr. BLACK. I really don't. I think it is a threat. I think it is——

Mr. BOUCHER. If it is a problem at all, it is longer term.

Let me ask one other question. Mr. Attaway, we have heard discussion here today about the e-mailing of broadcast programming, and the question was posed, if you e-mail to a friend or someone outside your immediately family, is that a fair use application? Should that be permitted under the broadcast flag? Frankly, I have doubts that it is fair use. I agree with Ms. Peters. In all likelihood, if the case were ever squarely put, I think probably sharing copyrighted programming without the consent of the copyright owner with someone outside of your immediate home setting probably would be found not to be fair use.

But suppose that that is not the example. Suppose that you are e-mailing that information to yourself. Suppose that you have taken the broadcast and you are sending it to your office, where you might need that programming for some business application. You are e-mailing that to yourself. That, I think, unequivocally would be found to be fair use, and my question to you is, in the proposal that you have put forth for a broadcast flag, as I understand it, that kind of application would not be permitted because the device that searches for the broadcast flag as it approaches the Internet would not permit that content to go forward onto the Internet. So I think your proposal would not permit it.

My question to you is, why not? Why should this not be structured in such a way as to accommodate the unequivocally legitimate fair use applications that people may have?

Mr. ATTAWAY. Congressman Boucher, I have to disagree with you. Under our proposal, it would be permitted as soon as technology exists to permit it to be done securely. This is a technological issue, not a policy issue. I don't agree with your policy—I don't disagree with your policy position, and I expect that technology will enable that to be done fairly quickly.

Mr. BOUCHER. So would you agree, then, that as the broadcast flag proposal goes forward, if it does go forward, that legitimate fair use applications, including those that involve use of the Internet, should be permitted?

Mr. ATTAWAY. The broadcast flag is intended to prevent the widespread redistribution of content. If technology exists to permit secure delivery of that content to your summer home or to your office, that is not something that the broadcast flag is intended to prevent, and presumably, it will not.

Mr. BOUCHER. Thank you. Mr. Black, do you want to just say a word?

Mr. BLACK. I mean, I think what we just heard with a very articulate——

Mr. SMITH. Mr. Boucher, let me say we have three votes coming up. The first is 15, the second is five, the third is a 15, and we have

a couple more items to take care of before we leave, so if you could give a very quick response.

Mr. BLACK. I think you had a very subtle way of—and articulate way that Fritz described collateral damage, and there is substantial collateral damage in the broadcast flag proposal on costs, on consumers, on innovation. Thank you.

Mr. SMITH. Thank you, Mr. Boucher. Actually, I am going to follow up on your last question and I would like to squeeze in a couple more questions before we go vote.

Mr. Attaway, I would like to read to you an excerpt from Mr. Black's prepared testimony in which he gives these examples that he says would be prohibited by broadcast flag: Ph.D. candidates who need to use copyrighted high-definition TV footage for a thesis on popular culture, proud parents who want to e-mail digital video of their child's soccer game, or corporate executives who want to watch video stored on an office computer while traveling for their personal non-commercial use. Do you agree that those things would not be possible?

Mr. ATTAWAY. Absolutely not. None of the——

Mr. SMITH. It depends on the technology, is that what you are saying? Mr. Black, hold on. Let him answer the question, please.

Mr. ATTAWAY. None of that content is digital television content, so it is totally—the broadcast flag is totally inapplicable to that kind of content. The broadcast flag would have no effect over it because it is not broadcast content.

Mr. SMITH. Let me ask another question. Mr. Black, you can answer this one, as well. Mr. Attaway, do you feel that you are using all the tools that you have available to you in the way of enforcement to stop the unauthorized distribution activities that you fear?

Mr. ATTAWAY. Yes. We are trying——

Mr. SMITH. In other words, if that is the case, why aren't you suing individuals, things like that? It seems to me that there are a lot of enforcement tools you could be using you are not using, but please respond.

Mr. ATTAWAY. Well, Mr. Black was correct in that like the content scramble system for DVDs, the broadcast flag will not be 100 percent effective. What it will do is it will keep honest people honest. It will provide a curb where people know if they step over that curb, they are doing something illegal. For those people who insist on doing it anyway, we will have to exercise our rights under the law, under particularly the DMCA to identify these people and to take appropriate legal action.

Mr. SMITH. Okay. Mr. Black, do you feel that DMCA, other laws are being utilized to their utmost, or is there more that could be done?

Mr. BLACK. No, I don't. I think what we have seen is a series of proposals put forth that have a similar theme, and the theme is, basically, let a variety of other players, including consumers and other industries, the telecommunications industry in some cases, computer industry, consumer electronics, let you all bear the costs. We propose new proposals and new legislation for you to do it. Frankly, you be the heavy guy with our customer. We don't necessarily want to alienate our customers, so we are going to create

a structure where you become the one who has to pass on costs or interfere with their privacy, and that is a problem we have.

Mr. SMITH. Okay, Mr. Black. Mr. Attaway, let me ask you to respond to something that Mr. Black said on page five of his written testimony. We got into it a little bit a while ago, but I still want you to respond. He says, only consumer—excuse me, it is Mr. Black and it is page five of Mr. Attaway's testimony. Only consumer products containing modulators or demodulators would be directly subject to FCC requirements necessary for the protection of unencrypted digital terrestrial broadcast content against unauthorized redistribution. It sounds easy. It sounds simple. It doesn't sound very expensive. Why is that such a burden, and Mr. Attaway, if you will respond, too.

Mr. BLACK. Well, first of all, it is not accurate, and with the Clerk's permission, we have a submission that was made by Philips to the FCC which lists—I will read them off—but a number of the products that——

Mr. SMITH. Do you want those made a part of the record? Is that what you are asking?

Mr. BLACK. Yes, please.

Mr. SMITH. Without objection, they will be.

[The material referred to follows:]

FCC-REGULATED DEVICES UNDER THE MPAA/5C PROPOSAL

DEVICE	DEMODULATOR	MODULATOR*	DOWNSTREAM PRODUCT**
Integrated DTV Sets	✓		✓
DTV Monitors			✓
Cable Set-Top Boxes	✓	✓	
DBS Receivers	✓	✓	
Personal Video Recorders (*e.g.*, TiVo, Replay)	✓	✓	✓
Advanced PVRs (incorporating twin-tuning, video editing and other capabilities)	✓	✓	✓
DVD Players		✓	✓
DVD Recorders	✓	✓	✓
D-VHS Recorders	✓	✓	✓
Computer with DTV Tuner Card	✓	✓	✓
Computer without DTV Tuner Card			✓
Network Routers/Switches			✓

* Devices identified ✓ in this category could include modulators and therefore be subject to FCC regulation.

** Devices identified ✓ in this category could be used as a "downstream product" within a consumer's home network. For the consumer to utilize the device on that network and be able to access flagged digital broadcast content, however (*i.e.*, as opposed to its being a "stand-alone" device), the device would be required to utilize FCC-"authorized technologies," or comply with the MPAA/5C's FCC-adopted "Requirements."

Mr. BLACK. Thank you. I will read off some of the devices which we believe will be affected as downstream products in modulation: Integrated DTV sets; DTV monitors; cable set-top boxes; DBS receivers; personal video recorders, such as TiVo and Replay; advanced PVRs incorporating twin-tuning, video editing, and other capabilities; DVD players; DVD recorders; D-VHS recorders; computer with DTV tuner card; a computer without DTV tuner card; network routers and switchers. This is—I would recommend Philips' testimony in this area as a company that has detailed out what they see. We see——

Mr. SMITH. Mr. Black, we have to go. Let me ask Mr. Attaway to respond very quickly and then we will need to adjourn.

Mr. ATTAWAY. Well, I think Mr. Black is correct. All of these devices will have to respond to the flag, but they are going to do that—have that capability anyway because they are being built with secure inputs and outputs in order to handle protected cable and satellite programming. The only devices that the flag will have an impact on are devices that are manufactured and sold only to render over-the-air broadcast television, and I think that is a very small number of devices because most consumers want to get cable and satellite and other protected content. So those devices will already have the technology in it.

Mr. SMITH. Thank you, Mr. Attaway.

Mr. Ferree, and let me make this the final comment, I hope you have got the clear signal that there is bipartisan concern about the FCC's infringing upon the jurisdiction of the Committee, and I am sure you won't overstep your bounds and I am reassured by the answer you gave to one of the questions that I asked you. When it comes to transmission, that is one thing. When it comes to use, that is another, and I hope the FCC will respect our jurisdiction in that regard.

Mr. FERREE. We will endeavor to do so, sir.

Mr. SMITH. Okay. Well, I hope you will not only endeavor, I hope you will actually do it. [Laughter.]

Mr. SMITH. Thank you, Mr. Ferree.

Thank you all for your contributions today. They are very, very helpful. As I say, this is an issue we are going to be looking at in coming weeks and months and all your participation is very appreciated. Thank you all.

We stand adjourned.

[Whereupon, at 11:25 a.m., the Subcommittee was adjourned.]

APPENDIX

MATERIAL SUBMITTED FOR THE HEARING RECORD

PREPARED STATEMENT OF THE HONORABLE JOHN CONYERS, JR., A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MICHIGAN

Copyright piracy is one of the most serious economic problems facing this committee. As the whole world knows by now, we have absolutely rampant piracy over the Internet. Last year, consumers swapped over 5 billion music files over peer-to-peer networks; an astonishing 58 percent of the American population between the ages of 12–21 has downloaded MP3's over the Internet in the past two years. Consumers have grown accustomed to free music on the Web; and movies and video games are a close second.

This is why we are at a crossroads in the media business. The decisions made in Congress, the state legislatures, and the courts will impact the future of the content industry, and whether we will even have a viable content industry in the future. We cannot continue to let the content industry and its employees operate in an environment where consumers feel entitled to content for free.

There have been two basic sides on this problem. The content industry was discouraged from putting its music and movies out in digital form unless the computers, television, and handheld electronics used to access them would obey digital rights management (DRM), the electronic tools used to stop piracy. The high-tech companies wanted the marketplace to be the judge; they wanted consumers to have access to content and electronics without restrictions.

Fortunately, there is a middle ground that is working. The parties will negotiate and the government will step in to either (1) get the negotiations moving if they stall or (2) implement a resulting agreement. This approach has seen its first success, the technical standard for a broadcast flag. The flag is the digital watermark that would be put on over-the-air digital television broadcasts to indicate the presence of DRM. The parties reached an agreement on a technical standard so that the content industry will make flags and the high-tech industry will make devices that work with each other. Now, the FCC is in a rule-making to implement that agreement.

I support this approach because it offers the best of both worlds: letting the market work while ensuring that the government can assert its prerogative to set policy. But we cannot stop now because there are at least three outstanding issues.

First, the FCC's broadcast flag rule must follow both the letter and the spirit of the agreement; it should not be filled with loopholes that make flags useless and allow piracy. Content companies will not be able to transition to digital unless they can be assured that they will not have to compete with Internet sites that offer copyrighted content for free. Second, the flag is just one step in addressing piracy. The parties must negotiate in good faith and reach agreement on the next issue, the analog hole or reconversion issue. This refers to closing the loophole that would be created if a digital broadcast with a watermark is converted to analog, thereby erasing the watermark, and then back to digital so it can be pirated. Finally, the parties must work toward solving the peer-to-peer piracy problem, which this Subcommittee considered at a hearing last week.

I can only hope that there will be fruitful discussions on these issues; otherwise, we will reconvene this Subcommittee and solve the problems with legislation.

PREPARED STATEMENT OF THE HONORABLE BOB GOODLATTE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF VIRGINIA

Mr. Chairman, thank you for holding this important oversight hearing on piracy prevention and the broadcast flag.

Our Constitution grants Congress the power to award inventors and creators, for limited amounts of time, exclusive rights to their works. The founding fathers realized that this type of incentive was crucial to ensure that America would become the world's leader in innovation and technology. This principle is still applicable today. As our nation continues its transition toward digital broadcasting, it is crucial that we continue to work to protect the rights of the content providers. There will only be a variety of programming options when content providers can calculate the expected benefits they will receive from their works and make informed business decisions accordingly.

The debate surrounding the appropriate methods that should be employed to prevent the unauthorized redistribution of digital content is an important piece of the larger digital piracy debate. I am encouraged by the fact that the private sector has acted to develop solutions to this redistribution problem. Over a year ago, the content, entertainment and technology industries sat down to discuss this problem and developed the proposed "broadcast flag" solution, which is an embedded digital message within the program that signals that the program must be protected from unauthorized redistribution. The potential benefits of the broadcast flag include the fact that it would ensure competition among the various delivery methods of digital content.

I am eager to listen to the testimonies of our well-informed witnesses and hear their opinions about how the government can help private industry solve the unauthorized redistribution problem. I am also eager to hear these experts describe the potential benefits that the broadcast flag can offer consumers and content providers alike. For example, is it true that the flag will protect over-the-air content without preventing consumers from enjoying that content in ways they always have in their homes, such as taping programs to view later?

Again, thank you, Mr. Chairman, for holding this important hearing.

PREPARED STATEMENT OF THE HONORABLE ZOE LOFGREN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

I want to thank Chairman Smith and Congressman Berman for holding this important hearing today.

As currently envisioned, the broadcast flag is nothing more than information embedded in a television signal. The flag itself does not protect anything. It merely signals to compliant televisions and other devices that the broadcast is copyrighted.

The real issue, then, is not the existence of the flag; it is the controls that the flag triggers. What will those controls look like? Will people be allowed to freely record digital broadcasts for personal use? Can they share those broadcasts with family and friends? Can they skip commercials in shows they record? Will they be able to transfer recorded shows to other digital devices? Which devices will be allowed? And most importantly, who gets to answer these questions?

My concern with the flag, like other digital rights management proposals, is that it has the potential to further erode the delicate balance between copyright owners and society. I recognize that digital broadcasts must be protected from mass copying. But copyright law does not give broadcasters, or any other copyright owner, absolute control over how consumers use their content. I do not think technology should either.

This week, I introduced a bill to address these exact concerns. The BALANCE Act of 2003 will ensure that future digital rights management technologies, like the flag, do not chill competition or destroy the principles of fair use and first sale. I urge the parties involved in the broadcast flag debate to carefully examine my proposal in the spirit it was offered. The BALANCE Act does not seek to destroy the protections of the DMCA. It seeks to focus those protections on preventing piracy without harming competition.

I want to remind the parties that digital technology is a nascent industry. The FCC, as well as content owners and IT companies, should proceed with utmost caution. Whatever solution is ultimately agreed to, it should be based on objective criteria that do not chill competition or unduly restrict consumer uses.

PREPARED STATEMENT OF THE HONORABLE ROBERT WEXLER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA

Mr. Chairman:

Thank you for convening this important hearing on piracy and copyright law implications of the broadcast flag. I am glad to have the opportunity here today to discuss the growing problem of broadcast television piracy. Particularly as we proceed with the transition to digital broadcasting, it is imperative to establish strong anti-piracy measures to protect this newly accessible type of intellectual property.

While I am concerned about Congress legislating technology, it should be clear to any observer that something must be done to prevent piracy of copyrighted digital television broadcasts. It is not the place of Congress, and certainly not the Subcommittee on Intellectual Property, to stifle innovation. Technology and innovation have long been a cornerstone of America's economy and will certainly have a significant role to play as we recover from our current economic troubles. At the same time, inaction in the face of copyright infringement of such a tremendous magnitude today could do even more to stifle innovation and growth in the future.

It is my hope that this so-called broadcast flag could provide the appropriate protection for copyrighted broadcasts without impeding technological growth and development or preventing lawful consumer fair use. I am deeply concerned with the possibility of broadcast content migrating to cable and satellite, which already have content protection, to prevent this kind of piracy. Without valuable high-definition content to support them, broadcast stations will certainly be harmed, as will consumers who will then be forced to subscribe to cable and satellite companies to enjoy the high-quality content broadband used to offer. There can be no question that consumers will ultimately be the ones to pay the price without broadband content protections; therefore, it is in the best interest of consumers to support the continuation of broadcast programming with copyright protections, provided the protection does not limit legitimate consumer use. It is my understanding that the addition of the flag to digital television broadcasts would not place any restrictions on the fair use of consumers and would prevent the kind of rampant, indiscriminate redistribution of broadcasting that is an affront to all copyright owners.

Opponents of broadcast flag have yet to provide an alternate solution to prevent the theft of perfect digital copies of television broadcasts. If the broadcast flag is the only solution anyone can present, it is the solution we must embrace if we are to continue the mandated digital transmission of broadcast television in the interests of the consumer, artists, and property law. I am glad that we are able to hear testimony regarding the copyright components of the broadcast flag issue before this subcommittee, and I look forward to continuing this important copyright debate.

March 10, 2003

Committee on the Judiciary
Subcommittee on Courts, the Internet,
and Intellectual Property
United States House of Representatives
B-351A Rayburn House Office Building
Washington, D.C. 20515-6219

Dear Chairman Smith, Ranking Member Mr. Berman, and Members of the Subcommittee:

In a letter sent yesterday to the Subcommittee, the undersigned and other organizations expressed our concern that the hearing entitled "Copyright Piracy Prevention and the Broadcast Flag" did not include a representative from an organization serving consumers, television viewers, or other public interest communities.

To make the hearing record more complete, Public Knowledge and Consumers Union respectfully submit the attached comments and reply comments submitted to the Federal Communications Commission's broadcast flag rulemaking, MB Docket No. 02-230.

Thank you for your time and consideration.

Sincerely,

Gigi B. Sohn
President
Public Knowledge

Christopher Murray
Legislative Counsel
Consumers Union

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

In the Matter of	)	
	)	
Digital Broadcast Copy Protection	)	MB Docket No. 02-230
	)	
	)	

COMMENTS OF PUBLIC KNOWLEDGE AND CONSUMERS UNION

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December 6, 2002

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

In the Matter of	)	
Digital Broadcast Copy Protection	)	MB Docket No. 02-230

To: The Commission

COMMENTS OF PUBLIC KNOWLEDGE AND CONSUMERS UNION

Public Knowledge and Consumers Union (hereafter "Consumer Groups") hereby submit these comments in connection with the Commission's *Notice of Proposed Rulemaking* FCC No. 02-231 (released Aug. 9, 2002) ("*NPRM*") in the above-captioned proceeding

I. SUMMARY AND INTRODUCTION

The two groups that are submitting these comments each play a unique role in advocating and protecting citizen interests as they may be affected by changes in technology policy and regulation. Public Knowledge is a nonprofit advocacy and educational organization that seeks to address the public's stake in the convergence of communications policy and intellectual property law. Consumers Union, publisher of *Consumer Reports,* is an independent, nonprofit testing and information organization serving only consumers. Its advocacy offices and the Consumer Policy Institute address the crucial task of influencing policy that affects consumers.

The Consumer Groups support the paired goals of promoting both high-definition television (HDTV) and digital terrestrial television broadcasting (DTTV), sometimes

referred to together as "DTV."[1] Further, we are committed to the protection of copyright, and we support creators' and publishers' prerogative to protect their copyright interests through technical means. Consumers have valid interests in the protection of copyrighted works, and particularly in rewarding creators to ensure the availability of a rich variety of content, as well as in the commercial viability of those businesses and enterprises who transmit or otherwise make that content availability to the public. At the same time, consumers also are concerned that their reasonable expectations with regard to the functionality, convenience, and cost of television receivers and display devices, personal computers and related devices, and other digital and consumer-electronics devices be maintained, to the extent possible, by any government regulation aimed at copyright protection through technological means. We note that this is an area in which, if the Commission acts imprudently, the result could be serious economic and non-economic harm, affecting a majority of Americans who view TV, or who use computers and other digital tools.

For this reason, the Consumer Groups urge that the Commission take adequate time for deliberation, including further private and public processes for fact-gathering, before going forward to devise and implement a rule centering on the broadcast-flag scheme. We also state at the outset that we have doubts about the wisdom of a broadcast-flag rulemaking at this time, for the following reasons: (1) implementation of the broadcast-flag scheme could adversely affect consumers, by limiting or eliminating reasonable and lawful consumer uses and increasing the cost and inconvenience of consumer technologies, (2) the broadcast-flag proposal as presented in the *BPDG Final Report*[2] is inadequate to protect copyrighted works, (3) the premises offered in the *NPRM* as justification appear to be questionable, and (4) any implementation of the broadcast-

---

[1] We use "DTV" in the context of the broadcast-flag discussion to refer primarily to HDTV and secondarily to any digital "high-quality" television content.
[2] *Final Report of the Co-Chairs of the Broadcast Protection Discussion Subgroup to the Copy Protection Technical Working Group* (June 3, 2002) [hereinafter *BPDG Final Report*].

flag proposal that might even approach effectiveness would require a very broad regulatory framework that extends beyond the Commission's statutory jurisdiction to a wide range of technologies that have not previously been considered to be subject to broad Commission regulation. We elaborate on these reasons in the discussion below.

II. IMPLEMENTATION OF THE BROADCAST FLAG SCHEME COULD ADVERSELY AFFECT CONSUMERS BY INCREASING THE COSTS AND INCONVENIENCE OF CONSUMER TECHNOLOGIES

The Commission seeks comment on a broad range of questions concerning the impact of "the ATSC flag or other digital copy protection mechanisms on consumers."[3] Specifically, the Commission seeks comment on the cost a broadcast flag might have on consumer electronics equipment, and the impact a flag might have both on legacy and future electronic equipment.[4]

As a general matter, the Consumer Groups believe that there has not yet been adequate discussion and fact-finding concerning the potential impact on consumers of implementation of a broadcast-flag. Part of the reason for this lack of discussion has been that the scope of the broadcast-flag regulation is unclear from the *BPDG Final Report*, although, as we note in Section III *below*, many technologists believe that the only implementation of the broadcast-flag proposal that might achieve the stated goals of the proposal is a broad one.

But whether implementation is broad or deliberately "narrow," we believe generally that the Commission must hold further hearings and engage in other fact-finding before any rulemaking imposing a broadcast flag, and must in particular seek feedback from consumers and independent economists and technology experts regarding both the likely direct impact a fully implemented broadcast-flag scheme would have on

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[3] In the Matter of Digital Broadcast Copy Protection, Federal Communications Commission Notice of Proposed Rulemaking, at ¶ 9 (Aug. 9, 2002) [hereinafter *NPRM*].
[4] *Id.*

consumers, and the indirect impact it might have by virtue of its effect on other sectors of the economy. Most important, before the Commission considers implementation of a broadcast flag, it should insist upon demonstration of technologies that will function as promised by content companies, protecting content in a robust manner while preserving reasonable and lawful consumer uses of both the content they lawfully acquire and the technologies they own, as well as protecting consumers' privacy expectations.

With regard to the broadcast-flag scheme's direct impact on consumers, the Commission must ask:

> (A) what consumers must reasonably expect to be able to do with digital content, and with their digital tools -- two sets of expectations that may be frustrated if the scheme is implemented.
>
> (B) how lawful uses of copyrighted works reserved to the public in the Copyright Act may be impaired, particularly where such impairment raises First Amendment questions
>
> (C) what additional costs will be imposed on consumers who must buy DTV products that comply with the broadcast-flag scheme (including development, manufacturing and licensing expenses passed on to consumers), and
>
> (D) what confusion and inconvenience a broadcast-flag scheme will cause. This question is especially important because, if differing technologies are accepted under Table (4) the likelihood of interoperability between consumer devices using one protection technology (*e.g.*, DTCP[5]) and those using another protection technology (*e.g.*, OCPS[6]) is small. Consumers have grown to expect a high degree of "plug and play" interoperability among their consumer-electronics devices. This is partly due to the ubiquity of standard analog interfaces, which ultimately also would have to be regulated in order to make a comprehensive broadcast-flag scheme maximally effective.

With regard to indirect impact, the Commission should ask what effect broad regulation of industrial sectors outside its traditional jurisdiction may have upon

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[5] The "Digital Transmission Content Protection" system. *See* http://www.dtla.com; http://www.dtcp.com/data/wp_spec.pdf. The DTCP system has been developed by the "5C" consortium, consisting of Hitachi Ltd., Intel Corporation, Matsushita Electric Industrial Co. Ltd, Sony Corporation, and Toshiba Corporation.

[6] OCPS is the "Open Copy Protection System" proposed by Philips Research. Because OCPS uses a longer encryption key than DTCP and (apparently) different encryption algorithms from those used by DTCP, it is unlikely that an OCPS-enabled device could interoperate with a DTCP-enabled device.

consumers' expectations of rapid development of computer and software products, including the possible regulatory slowing of the creation of new computer markets and industries (which under the broadcast-flag scheme would have to be designed to be compliant with BPDG-robustness and compliance rules).[7]

We have stated these concerns broadly here, but we also note that the Consumer Groups, together with the Center for Democracy and Technology, developed as a response to a request from Chairman Billy Tauzin of the House Energy and Commerce Committee a more detailed analysis and series of questions about the *BPDG Final Report* and recommendations, focusing on possible consumer consequences of implementation.[8] Although we have engaged in an ongoing set of discussions with content companies, information-technology companies, and consumer-electronics companies, we do not believe these questions have yet been adequately answered. We believe the Commission must have adequate answers to these questions before going forward on any proposed implementation of the broadcast flag. We also believe the Commission should consider whether there are overlooked alternative strategies to promoting digital television, including strategies that make use of point-to-point delivery of broadcast content over the Internet.[9]

In response to the Commission's request for information regarding costs to consumers from implementing a broadcast-flag scheme, as well as such a scheme's impact on legacy and new technologies, we observe that there are likely costs that follow from the interoperability and convenience concerns noted in Appendix A. As noted in

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[7] We believe that rapid development and deployment of new products ultimately may be what drives adoption of DTV. These may include products based on home networking, which will offer new utility to broadcast television, as well as products that may help overcome some of the technical deficiencies currently facing over-the-air DTV broadcasting.

[8] *See* Appendix A, *Consumer Policy Questions and Issues Regarding the BPDG Proposal for Protecting DTV Content* (July 10, 2002) [hereinafter *Consumer Policy Questions*], *available at* http://www.publicknowledge.org/documents/graphics-broadcast-flag.html.

[9] *See* Appendix B, Public Knowledge White Paper, *Harry Potter and the Prisoners of the DTV Transition*, (Dec. 6, 2002) [hereinafter PK White Paper], *available at* http://www.publicknowledge.org/reading-room/documents/policy-papers/potter-paper.pdf.

that Appendix, it is unclear that the various technologies approved for inclusion in the BPDG scheme's "Table A" will interoperate with one another or with legacy equipment.[10] We believe this will likely mean less consumer choice and greater cost to consumers as they adapt to digital broadcasting -- not just the cost of DTV receivers, but the costs of equipment designed to interoperate with the receiver and to implement a copy-protection scheme. Should a copy-protection scheme become obsolete, it is unlikely that the successor scheme will be backward-compatible (since if it is it will not close the "hole" created by obsolescence). This means that the obsolescence and the replacement of such a copy protection scheme will lead to a recurrence of those consumer costs.

III. THE ASSUMPTIONS BEHIND THE COMMISSION'S PROPOSED RULEMAKING ARE INCORRECT.

A. There is as Yet No Practical or Theoretical Reason for the Commission to Believe There is (or Soon Will be) an Infringement Problem Uniquely Associated with DTV.

The Commission's request for comments assumes that "digital media, unlike its analog counterpart, is susceptible to piracy because an unlimited number of high quality copies can be made and distributed in violation of copyright laws."[11] This assumption is incorrect, for two reasons:

i. There is no significant degree to which digital content is more infringeable than analog content.

The assumption made by the Commission in the passage quoted, *supra,* can be restated as follows: "Because digital content does not degrade as subsequent digital copies are made from digital copies of the original, this poses a special threat of large scale infringement."

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[10] *See Consumer Policy Questions, supra* note 8.
[11] *NPRM* at ¶ 1.

The Commission's assumption is incorrect because the Commission overlooks an important technological consideration -- namely, that digital copies of *analog* content do not degrade in subsequent copying either. It is already the case that digitization of analog TV content *also* leads to high-quality digital copies that do not lead to degradation of quality as subsequent copies are made.

Moreover, high-quality conversion of digital to analog form and from analog content into digital form is trivial and can be done at low cost on a number of inexpensive consumer devices, as well as consumer-grade personal computers.[12] Nor is this conversion limited to NTSC (480i). There is no technical reason that one could not take, for example, DVD-quality (480p) video and convert it to analog form, then redigitize it in a form that would be indistinguishable from the original to almost all viewers. The same is true for higher-quality digital content, such as HDTV.

What has apparently misled the Commission here is that *analog* copies (*e.g.*, analog VHS or audiotape copies) show degradation of quality in subsequent generations (*i.e.*, copying from copies). As audiophiles long have known, this is true even if the analog copy is made from a digital source, such as a music CD; an analog audiotape recording of a music CD will result in degradation of quality and loss of information if subsequent copies are made from the audiotape. Similarly, if someone receives digital cable content and records it through a connected VCR to a VHS tape (which may itself result in a high-quality copy; see next paragraph), and that tape, in turn, is used as a

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[12] *See* the following consumer products *at*
http://www.elgato.com (capturing analog TV and converting to high-quality MPEG digital format);
http://www.formac.com/p_bin/?cid=solutions_converters_studiodvtv (converting analog to digital video);
http://www.projectorexpert.com/Pages/tvcards.html (reviewing cards that capture both ATSC digital TV content and NTSC analog content);
http://www.hauppauge.com (capturing DTV content that can be displayed on an analog computer monitor); and
http://www.digitalconnection.com/Products/Video/hipix.htm (capturing DTV content for display on an analog computer monitor).

source for subsequent VHS tape-to-tape (analog) duplication, the quality of that content will degrade even though it is digital in origin.

While it is true that the conversion of analog content to digital form is theoretically accompanied by some loss of information, it is also true that the loss of any information in a high-quality conversion may be below any level that is perceptible to the ordinary viewer. In effect, with existing consumer electronics and personal-computer equipment, available to and useable by ordinary TV viewers and computer users, digital copying of analog-source content can be just as good, for all practical purposes, as digital copying of digital content.

What this discussion underscores is that, contrary to the NPRM's assumption (widely shared in some policy circles, but generally dismissed by independent technologists) it is not the source (digital or analog) or the original form of the content that makes it susceptible to digital infringement. Instead, it is the irreducible fact that digital devices of all sorts routinely and reliably make perfect copies of digital information, regardless of whether the original source of that information is digital or analog. The ubiquity of digital devices that do this is one of the outgrowths of the microcomputer revolution that began in the mid-1970s.

ii. There is as yet no evidence of an infringement problem associated with the HDTV television content that is already broadcast in the clear or otherwise transmitted in unprotected form.

It has already been established that the major networks are distributing some percentage of their current content in HDTV formats. CBS is already broadcasting most of its primetime schedule and all of its scripted entertainment series, from "Everybody Loves Raymond" to "CSI: Crime Scene Investigation" in the HD format.[13] If digital

[13] *See* "Zenith and Samsung Partner with CBS to Deliver Network's Fourth Season of Primetime HDTV Programming," Aug. 28, 2002, *available at* http://www.atscforum.org/pr/PR-082802-CBS-Partners.pdf (listing the programs CBS broadcasts in HDTV and discussing their commitment to HD).

infringement of this kind of high-quality digital content were a problem, we should be seeing evidence of that problem even now (*e.g.*, HDTV-quality copies of "Everybody Loves Raymond" appearing on the Internet). Before the Commission proceeds in a rulemaking in this area, we believe there should be some showing of the existence of a significant copyright problem or content-protection problem associated with DTV or HDTV, other than predictions of some future problem.

Whether infringement of HDTV in its original format (rather than a degraded, compressed format showing loss of resolution and loss of other information) will ever be a problem is itself a question that has not been adequately investigated by Congress or by the Commission. As one of the Consumer Groups, Public Knowledge, notes in a White Paper on the DTV transition, the file-sizes of HDTV content in native format are so great that even an individual with the highest-grade consumer broadband connections available today would require many hours or even days to download more than one such file from the Internet.[14]

B. Adoption of the Broadcast-Flag Proposal is Unlikely to Hasten the Transition to Digital Broadcast Television and May Indeed Slow That Transition.

The *NPRM* states the following: "… with a view towards facilitating the DTV transition, this *Notice* seeks comment on whether a regulatory copy protection scheme is needed within the limited sphere of digital broadcast television… If such programming is being withheld, will it continue to be withheld in the absence of a regulatory regime?"[15]

i. There is as yet no commitment by content companies to license HDTV content if the broadcast flag regime or a similar regime is adopted.

An initial question here is whether content providers who have stated a refusal to license content for DTV will commit themselves to release such content if the FCC

[14] *See* PK White Paper, *supra* note 9, at 13.
[15] *NPRM* at ¶ 3.

adopts the broadcast flag proposal. If there is no such binding commitment with specific significant increases over current high-definition and other DTV primetime broadcasts, then it follows there is no guarantee that any agency action taken to require the broadcast-flag-based protection scheme will result in the release of more content or faster consumer adoption of DTV. The absence of such a guarantee would itself be an argument against imposing a broadcast-flag requirement. Moreover, absence of such a commitment raises the question of why there should be any rush to impose such a requirement.

Given the discussion in Sec. III of the mistaken assumption that digital content is peculiarly susceptible to infringement, any content provider's refusal to release digital content for broadcasting may be considered primarily a problem to be solved by educational measures (to correct misunderstandings about the nature of the infringement problem, if any) rather than by technological mandates or other technically focused regulation. Furthermore, the Commission should also ask why some content providers such as CBS have in fact committed to releasing high-quality digital TV programming even in the absence of any settled content-protection scheme for broadcasting.[16]

The Commission also should question the fundamental theory behind this rulemaking proceeding: that the lack of DTV adoption is due to the failure of content providers to offer up HDTV content, which in turn is due to the lack of copy protection. The actual record supports a different theory or set of theories, based on no fewer than five considerations:

- More than half of broadcasting stations are not broadcasting digital television despite the Commission's mandate to do so.[17]
- A number of tests have demonstrated that consumers cannot receive 8VSB-transmission-standard broadcast DTV indoors as reliably as they can receive NTSC (standard television) broadcast signals.[18]

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[16] *See supra* note 13.
[17] *See* Alex Adrianson, *Digital TV: The Future That Isn't Working*, Consumers' Research Magazine, Sept. 1, 2002 (stating nearly three-quarters of the commercial broadcasters missed the May 1, 2002 deadline for being on the air in digital).

- DTV television sets and displays are considerably more expensive than analog sets. A television viewer can buy a good 27-inch color NTSC set for less than $250. By contrast, HDTV-ready television monitors still typically cost more than twice as much, with true HDTV-capable monitors running from about $1500 to more than $3000 without a tuner. Adding a tuner (to make the HDTV monitor a complete "television set") currently costs approximately $400 to $500 (plus, possibly, another $100 to $500 to install an antenna capable of adequately enhancing 8VSB transmissions for reception).
- Most consumers have little if any awareness of the pending transition to DTV.[19]

In practical terms, there is already plenty of DTV content – the 480p digital content of DVDs, which continue to sell exceedingly well.[20] In fact, DVD content is the major force driving the sale of those HDTV-capable displays, including those that contain DTV tuners.

In short, many broadcasters are not yet providing a DTV signal, and when that signal is present viewers have a harder time receiving it. In addition, those viewers who know about the transition and who want to receive DTV must spend larger amounts of money, and cope with less reliable reception.

ii. The Broadcast-Flag Scheme's provision that HDTV content be broadcast "in the clear" neither serves consumers nor adequately prevents infringement.

Even if CBS is an outlier[21], and the general will of content companies is to impose protection on DTV content (or at least on high-quality DTV content), it is unclear why

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[18] *See, e.g.,* E. Taub, *The Big Picture On Digital TV: It's Still Fuzzy*, New York Times, Sept. 12, 2002, G1. "In reception tests from the 64th floor of a New York skyscraper using a rabbit-ears antenna, Mr. Schubin and his colleagues were able to pick up only three of the nine digital stations in the New York area that were then broadcasting." *Id.*

[19] *See* Pelofsky, Jeremy, *Consumers in the Dark on Digital TV*, Reuters, Dec. 3, 2002, *available at* http://digitalmass.boston.com/news/2002/12/03/digital_tv.html (Government Accounting Office survey found that 40% of Americans had never heard of the transition to digital TV, and 43% were only "somewhat aware.").

[20] *See* DVDs Delight Fans and Movie Studios, *at* http://www.msnbc.com/news/842748.asp?0si=-&cp1=1.

[21] It seems unlikely that CBS is an outlier on the question of whether to disseminate its high-value content in unprotected digital formats, given that Discovery Communications Inc. announced in April its June launching of a 24-hour HDTV channel; that ABC is broadcasting a number of popular shows (including The Drew Carey Show, NYPD Blue, Alias, and The Practice) in HDTV already; that NBC has increased its

HDTV needs to be broadcast in the clear. If the nominal purpose of broadcasting high-quality DTV content in the clear is to preserve the benefits of free over-the-air broadcasting, we note (1) that the broadcasting-dependent segment of the television audience is already small and continuing to decline, and (2) that the requirement that this audience buy digital television sets (or digital converter boxes for their analog sets) does much to undermine the policy of promoting "free" broadcasting. Instead, it creates new costs to a consumer demographic that, perhaps, may be less well-positioned to bear that cost (if we assume that some percentage of broadcast-dependent viewers cannot afford cable or satellite service).

We note also that the cost of imposing the broadcast-flag proposal (even if only on the consumer-electronics market) may be more expensive to society as a whole, and to consumers collectively, than would mandating and/or subsidizing satellite dishes for those households that cannot obtain or afford cable or satellite service currently. In addition, the end-to-end scrambling systems of satellite and cable systems do not have the flaws of "marking"-based copy-protection systems like the broadcast-flag proposal.[22]

If, however, the Commission believes (and, more importantly, develops an empirical record demonstrating) that the lack of HDTV content is slowing the DTV transition, then the Commission could require that content providers provide an increasing amount of HD primetime TV content each year (*e.g.,* 50% in 2003, 75% in 2004, and 100-% in 2005). If the concern is to maintain the viability of over-the-air television broadcasting, wouldn't it be less a less costly solution if the Commission simply required producers and distributors of TV content to produce broadcast content in HDTV format, just as CBS does now, especially if the evidence for any infringement threat associated with DTV is less serious than has been asserted?

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broadcasting of HDTV content from 6 hours to 14 hours just this year; and that Fox is broadcasting 100 percent of its primetime programming in Enhanced Definition 480p format (i.e., DVD quality).

[22] *See infra* Subsection (3) (discussing the flaws marking-based copy-protection).

iii. A regulatory copy protection scheme serves neither consumers nor content providers, and could slow the transition to DTV.

As we discussed in Sec. III A, the express concerns about DTV content infringement may be overstated. Apart from this issue, it is unclear whether "a regulatory copy protection regime" is the best answer, both in terms of preserving consumer expectations as to access to, and use of, commercial content and in terms of adequately protecting the interests of those who create, produce, and distribute commercial content. History suggests that copy-protection technologies, once deemed more than adequate, may ultimately prove to be flawed. We take the position that a relatively unregulated market in information-technology and consumer-electronics products and services is more likely to be responsive when it comes to protecting commercial content against future technological attacks. What the Commission may do, if it proceeds too quickly to adopt a broadcast-flag scheme, is "set in stone" what kinds of technological responses these industries, as well as the content industry, may develop in response to new technological attacks. This we believe will serve neither consumers nor content owners. Indeed, by imposing a regulatory process over the development of new copy-protection technologies, the Commission may itself slow the transition to digital television, especially if unforeseen problems relating to the protection of digital content arise.

C. The Scope of the Broadcast-Flag Proposal, and the Technical Hurdles and Outstanding Effectiveness and Consumer Issues Surrounding it, Mean that the Commission Should not Yet Adopt Rules That Would Impose This or Any Similar Proposal.

The Commission asks for comment on whether it "should adopt rules or create some other mechanism to resolve outstanding compliance, robustness, and enforcement issues."[23]

The NPRM correctly characterizes the BPDG negotiations as having been "unable to reach a consensus, including enforcement mechanisms" on compliance and robustness

[23] *NPRM* at ¶ 4.

requirements regarding the broadcast-flag. What it does not do is characterize the causes for the lack of consensus, which include fundamental disagreements about the question of whether the broadcast-flag scheme is the best approach for protecting digital content, whether it works adequately, and whether consumers will be unduly inconvenienced by its implementation.

One disagreement concerned the decision to use a "broadcast-flag" approach rather than to use encryption or scrambling to protect broadcast HDTV content (as is currently the approach for cable and satellite distribution). Consider for example Footnote 3 of the *BPDG Final Report*, which notes that some companies argued for end-to-end encryption protection of content as technically superior, but were told that for "political" and "economic" reasons an encryption-based approach to protecting HDTV content would be nonviable. What Footnote 3 suggests is that many of the fundamental differences stem from the fact that the broadcast-flag scheme is perceived by the information-technology companies, by independent technologists, and even by some content creators and distributors as inherently flawed or, at best, "incomplete".[24] While no copy protection system is "unhackable," transmitting the information in the clear, on the assumption that content protection will begin at demodulation of the broadcast signal, results in a system that, in effect, "leaves the front door open."

To take only one example: It is generally known that the latest Intel microprocessors run at speeds of up to 3.06 GHz; Moore's Law[25] predicts the arrival of 6.12 GHz microprocessors within 18 months. Even if such microprocessors do not arrive on schedule, it is certain that increasingly popular dual- and multi-processor personal computers based on high-speed microprocessors could support software-based demodulation of an "in the clear" digital television signal in the near future (the PC

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[24] *See* Comments of The National Music Publishers' Association, MB Docket No. 02-230, 8-10 (Oct. 30, 2002).
[25] *See* Moores' Law Definition, *at* http://www.webopedia.com/TERM/M/Moores_Law.html.

would essentially require little more than an antenna and a generic analog-digital converter). For this and other reasons, regulating PC design seems to be necessary under the broadcast-flag scheme (as the National Music Publishers correctly note in their filing[26]).

This example explains in part why it is generally believed among technologists that copy protection schemes based on "marking" or "flagging" the content to be protected essentially require that all digital devices capable of transmitting digital data be redesigned to monitor for marked content and then limit copying and/or transmission accordingly. Furthermore, although technologists generally believe a "marking" scheme is inherently less effective than end-to-end encryption, they also recognize that the only regime under which a "marking" scheme might work to the required degree is one in which most or all digital devices (including software) are brought under the regulation. Such regulation would reach beyond traditional consumer-electronics devices--mostly players and recorders--to general-purpose information-processing tools such as computers and software, once again arguably raising jurisdictional problems for the Commission.[27]

Another source of disagreement in the BPDG proceedings was the recognition by some attendees that the broadcast-flag proposal would likely be ineffective, even if imposed in as broad-ranging a form we discuss in the preceding paragraph, because of the "legacy" DTVs in the field.[28] They knew, for example, that although there are fewer than 250,000 DTV receivers in households today, if the proposal is implemented – assuming that the 8VSB standard is improved to carry ATSC reliably — there will likely

[26] *See* Comments of The National Music Publishers' Association, *supra* note 24, 10-11.
[27] As we shall discuss below in Sec. V, imposing a broadcast-flag standard on a broad range of technologies also would seem to be beyond Commission jurisdiction as that jurisdiction is currently understood.
[28] *See Consumer Policy Questions*, *supra* note 8.

be a million or more unprotected receivers with "in the clear" digital outputs that can be interfaced to existing equipment for duplication and retransmission through the Internet.

In addition, many information-technology companies and consumer-electronics companies recognized that digital-analog-digital copies from a DTV source are likely to be perceived to be as good as the original to ordinary viewers, even on a high-quality display device.[29] Thus, they disagreed on implementing the BPDG scheme because the scheme, in effect, also "leaves the back door" open, since digital-analog-digital copies would sidestep broadcast-flag-based copy protection. The disagreement about the broadcast-flag proposal reflects a recognition that, without analog protection, the BPDG approach is ineffective, and that, furthermore, there has been no generally accepted satisfactory solution to the problem of the so-called "analog hole" (which may not be solvable at all). Watermarking technologies, the only widely known proposed solution to the "analog hole," have not been publicly demonstrated to work effectively, and there are also theoretical reasons to believe they simply cannot work as indelible marks for digital content.[30]

It should be noted here in passing that one proposal to ease the transition to DTV for consumers has been the notion of relatively inexpensive "converter boxes" that would adapt legacy analog TV sets to receive digital signals. One side effect of this measure could be to *widen* the "analog hole" by enabling existing analog home-entertainment equipment to demodulate high-quality DTV content, convert it to analog form through the converter box, and then retransmit it, absent a broadcast flag, to another device, where it can be redigitized and transmitted to the Internet or elsewhere. If we assume that the content companies are correct to say that infringement of digital television content will

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[29] *See supra* Sec. III (discussing digital and analog content infringeability).
[30] *See* Scott A. Craver, et. al., *Reading Between the Lines: Lessons from the SDMI Challenge*, Proc. of 10th USENIX Security Symposium, Aug. 2001. *See also* Darko Kirovski & Fabien A.P. Petitcolas, *Replacement Attack on Arbitrary Watermarking Systems*, ACM Workshop on Digital Rights Management, (2002) *at* http://crypto.stanford.edu/DRM2002/drm.pdf.

prevent them from licensing content for HDTV broadcasts, we observe that converter boxes will exacerbate this alleged problem, and thus give content companies further disincentives to license their content. This eventuality would not only fail to accelerate the transition to DTV, but also would seem to slow it.

Yet another reason some industry representatives could not agree on the compliance and robustness rules is that they were concerned that the functional requirements of the rules might significantly limit what consumers can do with commercial TV content, constraining TV viewers far more in the future than they have been in the last two decades -- by, for example, making it impossible for someone to record a TV show at home and then take the recording to work to play it on a different device.[31]

It seems likely that, if the Commission were to take on the task of setting and enforcing the compliance and robustness requirements of the BPDG broadcast-flag scheme as broadly as necessary to make the scheme maximally effective, it would find itself mired both in technical issues and consumer issues that extend far beyond the traditional domain of regulating television broadcasting. Answering the questions raised by these issues seems likely in itself to cause delays in the transition to DTV.

Because the issues surrounding implementation of a broadcast-flag scheme involve an inextricable mix of technical and policy questions -- inextricable because nearly every technical decision in this arena has effective policy consequences, and because nearly every policy choice in this arena has far-reaching technical consequences -- we believe that the determination of the need for such a regime, as well as the

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[31] *See Individual Comments of the Consumer Electronics Industry Co-chair, BPDG Final Report, supra* note 2, Sec. 2.21. "Some CE companies are concerned that while the initially understood goal was to protect retransmission of content over the internet, the actual document is less than clear in specifically narrowing this protection to the public network known as the Internet, and that while exclusions have been made for home and personal networks, these limits are not clear." *Id.* The co-chair's comments list a number of other consumer-based concerns as well. *See id.*

determination of its scope and particulars, should be derived from clear statement of policy direction from Congress, and should be delayed until it has spoken on the matter.

The policy questions we believe Congress is best positioned to determine include but are not limited to reasonable consumer expectations regarding personal copying, time-shifting, pace-shifting and the preservation of the freedom to make lawful uses of digital technology and content. They also include questions of whether consumer expectations regarding consumer-electronics and information-technology devices and software will continue to be met. Currently, consumers expect to be able to disassemble, study, and modify these devices -- it is unclear how these expectations would apply to devices and software that, per regulatory requirement, met the robustness and compliance rules necessary for effective broadcast flag implementation. It is further unclear whether the rules would have an impact on both individual and industrial innovation.[32] To date, no Congressional hearings have been held focusing on these particular questions as they relate to implementation of large-scale copy-protection schemes.

IV. ANSWERS TO SPECIFIC QUESTIONS IN THE NPRM

A. "Would a regulatory copy protection regime create and maintain industry incentives to continually innovate to improve the method of digital content protection?"[33]

Because under a Commission-instituted Rule, the adoption of any improved or alternative content-protection technology would require approval by the Commission or some appropriately delegated body or agency, that approval process alone would slow the introduction of better technologies to market.

In addition, the effort focused on "marking" approaches to protection of content would absorb industry research-and-development resources and funding that might be

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[32] *See* Mike Godwin, *Free to Tinker? IP Caution Could Undermine the Great American Urge to Innovate*, Legal Times, Oct. 21, 2002.
[33] *NPRM* at ¶ 4.

better focused on point-to-point secure delivery systems. This creates an opportunity-cost problem, and also is problematic because content-protection experts generally agree that point-to-point security is inherently more reliable than a scheme in which content is broadcast in the clear and secured only at the point of demodulation.

B. "... we seek comment on whether broadcasters and content providers should be required to embed the ATSC flag or another type of content control mark within digital broadcast programming, or whether they have sufficient incentive to protect such programming such that a government mandate is unnecessary."[34]

Since the broadcast flag would be part of the ATSC standard, any broadcaster who engages in digital broadcasting will be using ATSC-compliant broadcasting equipment and would automatically transmit the flag. Ergo, there is no need for broadcast-flag-specific mandate.

There is also the issue here, however, that the Commission must decide when the broadcast flag may not be used. For example, certain programs should not be protected by the flag, such as news (including public events such as State of the Union, Presidential Press Conferences, Congressional and agency proceedings, and similar events).

A broader point to be considered here is that the broadcast flag, if present in the ATSC signal, represents the broadcaster's desire not to have the content copied. But some broadcasters might choose not to use the broadcast flag, because they are happy to allow copying (*e.g.*, because their business model, even after one accounts for licensing restrictions imposed by content companies, allows for some consumer copying of commercial content). A broadcast-flag mandate would prohibit broadcasters from making the choice to explore alternative business models that allow consumer copying.

As for "another type of content control mark within digital broadcast programming," we note with concern that some advocates of the broadcast flag appear to

[34] *NPRM* at ¶ 5.

envision a "next step" of control over uses of content, including perhaps lawful uses, by including a larger flag payload than necessary at this juncture. The broadcast flag proposed by the BPDG contains an "re-information field" defined as an undesignated segment of the broadcast flag reserved for "optional additional redistribution control information that may be defined in the future." We urge the Commission to give careful consideration to whether any proposed solutions could be used for other unintended purposes that might not be beneficial to the public.

C. "On the reception side, we seek comment on whether the Commission should mandate that consumer electronics devices recognize and give effect to the ATSC flag or another type of content control mark. If so, we seek comment on whether this mandate should include devices other than DTV broadcast receivers and what the resulting impact would be on consumers…"[35]

Certainly, in order for any marking scheme to have a hope of being effective, broad regulation of some sort over reception and recording devices would be required. This could, however, disrupt the convergence of traditional consumer electronics and more flexible computer and software devices.[36] One benefit of this convergence has been lower-cost consumer devices; another has been development of new products. Consumers already expect consumer products such as DVD players and CD writers to drop in cost over time, and they also expect new products and increasing functionality of existing product lines.

If we assume that a "marking"/monitoring scheme is not implemented industry-wide, it might lead to bifurcation of CE and information-technology sectors, in effect ending convergence and its resulting benefits to consumers in terms of less expensive and new products. This might also lead to fragmentation within the consumer-electronics and information-technology sectors, as manufacturers divide product lines into (1)

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[35] *NPRM* at ¶ 6.
[36] TiVo and ReplayTV, which take advantage of increasingly inexpensive computer components, are modifiable -- we may predict future versions of these products will be developed for digital TV.

"compliant" and "robust" consumer devices that are more limited in functionality, and (2) so-called "professional"-grade devices, which are not constrained by broadcast-flag design requirements.[37] (The word "professional" is something of a misnomer here, since professionals and nonprofessionals alike routinely purchase, and continue to express demand for, general-purpose computers, which of course are the source of most unlicensed content distributed today on the Internet, and which routinely are modified or programmed for special-purpose, "professional" functions). Not only would the drawing of these lines reduce the cost benefits of convergence due to economies of scale, but they also would undercut innovation, since tomorrow's engineers and programmers typically learn their skills as much from exploring general-purpose home computers and from being able to disassemble, explore, and modify consumer-electronics devices as they do from any institution-based education.

In short, if the Commission commits itself to determining the proper solution for protection of digital television, and does so without adequately considering both the "downstream" requirements and the "downstream" effects of such a scheme, it may succeed only in (a) putting the brakes on the digital content revolution and on the computer revolution generally, and (b) adding costs to DTV equipment, which is already comparatively expensive. Neither of these developments would benefit consumers or accelerate the transition to digital television.

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[37] *See BPDG Final Report, supra* note 2, Sec. 4.12. "Both proposals for section X.2 of the Compliance and Robustness Requirements anticipate that an appropriate provision will be crafted so as to exempt the requirements from applying to products that are specifically intended for professional and broadcast use (*e.g.*, equipment used by studios, TV broadcasters, satellite and cable operators)." *Id.*

D. "We seek comment on how a particular technology would receive approval for use in consumer electronics devices for digital broadcast copy protection purposes. We also seek comment on identifying the appropriate entity to make an approval determination."[38]

We find it difficult to imagine any approval scheme for Table A inclusion that does not simultaneously suppress innovation for established corporate technology developers (who will design for regulatory approval rather than for efficiency, interoperability, or maximum security) and lock GNU/Linux and other open-source developers [39] as well as individual and small-firm developers for proprietary platforms such as Microsoft Windows (or in any other case in which there is no established corporate infrastructure to pursue regulatory approval).[40] Even now, the development of new digital technologies or new digital applications of existing technologies is dependent more on small-scale and individual innovators than is innovation in other industrial sectors. The regulatory scheme discussed here has the potential skewing of the market and technological development in both predictable and unpredictable ways.

If, however, the Commission does proceed to develop a system for approving technologies for inclusion in Table A, that system should be based on objective criteria, with public notice and comment, and with due protection of legitimate consumer interests.

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[38] *NPRM* at ¶ 7.

[39] GNU/Linux, sometimes referred to popularly simply as "Linux," is a computer operating system whose source code, as well as the source code for many of its applications, is widely published and generally distributed with, or in place of, its binary form. Developers who wish to draw upon the existing base of GNU/Linux source code are obligated by licensing agreements to publish the source code of whatever software tools and applications they develop for public distribution, so that end users can inspect and modify it as necessary. GNU/Linux and other so-called "open source" operating systems continue to provide a lively base of software development in the United States and around the world, primarily due to the multitude of individual programmers who use the GNU/Linux base of source code and add to it. Because the source code is generally public, however, any attempt to implement GNU/Linux tools to interoperate with the digital television protection scheme outlined by the BPDG is unlikely to meet the "robustness and compliance" requirements laid out by the BPDG report. Indeed, published source code makes GNU/Linux tools inherently "tamperable."

[40] While individual programmers and developers for the Windows operating system may not be constrained by the licensing agreements that bind open-source developers, they are less likely than large corporations to have the resources both to develop new technologies that interoperate with the BPDG-scheme technologies and to pursue Commission approval of those technologies.

E. "[W]e seek comment on whether there are First Amendment or any other constitutional issues that we should consider from the point of view of the industries involved or individual consumers."[41]

With regard to the First Amendment implications of the broadcast flag and similar approaches, traditionally, fair use has been held to be a way of harmonizing copyright-law restrictions on expression and First Amendment freedom of expression.[42] To the extent that a broadcast-flag proposal might curtail fair use, it undercuts First Amendment values.

There are other First Amendment-related constitutional values besides those encompassed by fair-use doctrine in our copyright law. Notably, freedom of inquiry may be affected by restrictions on use and/or modification of consumer electronics and computer technologies.[43] Moreover, since our courts have established that writing a computer program constitutes protected expression under the First Amendment,[44] any scheme that restricts the kinds of software that individuals and corporations can author will necessarily have a First Amendment impact.

V. THE COMMISSION LACKS JURISDICTION TO MANDATE THAT CONSUMER ELECTRONICS DEVICES RECOGNIZE AND OBEY A BROADCAST-FLAG

The Commission seeks comment on the limits of its authority to implement a digital copy protection scheme, and specifically requests comment as to whether it has the "authority to mandate the recognition of the ATSC flag in consumer electronics devices."[45] The Commission also asks "whether Sections 336(b)(4) and (b)(5) impact upon the Commission's ability to adopt digital broadcast copy protection regulations?" [46]

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[41] *NPRM* at ¶ 8.
[42] *See, e.g.*, Nihon Keizai Shimbun, Inc. v. Comline Business Data, Inc., 166 F.3d 65, 74 (2d Cir. 1999) (stating that the Second Circuit has "repeatedly rejected First Amendment challenges to injunctions from copyright infringement on the ground that First Amendment concerns are protected by and coextensive with the fair use doctrine").
[43] *See* Godwin, *supra* note 31.
[44] *Bernstein v. U.S. Dept. of Justice*, 176 F.3d 1132 (9th Cir. 1999).
[45] *NPRM* at ¶ 10.
[46] *Id.*

As discussed below, while the Commission may have the authority under the Communications Act to require that a broadcast flag be made part of the DTV signal, it does not have the authority under the Communications Act to require consumer electronics and/or computer manufacturers to architect their hardware to obey it. Moreover, there is nothing in Section 336 that gives the Commission that authority.

A. The Commission Does Not Have Ancillary Jurisdiction to Require Consumer Electronics Devices and/or Computers to Obey a Broadcast Flag.

While the Commission has broad authority to regulate all forms of electrical communication, including broadcasting, under Title I of the Communications Act, such authority is "not without limits."[47] The FCC's ancillary authority under Title I only supports regulation where the Commission has subject matter jurisdiction over the communications at issue and the regulation is reasonably required for the FCC to administer an explicit statutory obligation.[48]

Under these parameters, it is clear that while the Commission likely has the authority to require some sort of broadcast flag be imbedded in a DTV signal, it does not also have the authority to require consumer electronics devices and/or computers to obey the flag or other digital copy protection mechanism the Commission might require. As discussed below, nothing in Section 336 gives the Commission that authority. And to the extent that the Commission is tasked under the Communications Act to provide a "fair, efficient, and equitable distribution" of broadcast service among the "several States and communities,"[49] and to act "as it may deem necessary" to prevent interference among

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[47] *MPAA v. FCC*, 309 F.3d 796, 804 (D.C. Cir. 2002)
[48] *See United States v. Midwest Video Corp.*, 406 U.S. 649 (1972) (plurality opinion); *United States v. Southwestern Cable Co.*, 392 U.S. 157, 178 (1968); *MPAA v. FCC*, 309 F.3d at 806-7.
[49] 47 USC §307(b)

stations,[50] implementation of a broadcast flag scheme will do nothing to further those statutory goals.[51]

Moreover, Title I itself does not bestow "plenary authority over 'any and all enterprises which happen to be connected with one of the many aspects of communications.'"[52] Title I does grant the Commission authority over "all interstate and foreign communication by wire or radio," which includes broadcasting.[53] "Radio communication" is defined as "the transmission by radio of writing, signs, signals, pictures, and sounds of all kinds, including all instrumentalities, facilities, apparatus, and services (among other things, the receipt, forwarding and delivery of communications) incidental to such transmission." [54]

Obeying a broadcast flag is neither the transmission of a signal nor a service "incidental" to such transmission. Instead, it is a process that occurs after the transmission and reception of a signal. Similarly, the recording functions of consumer electronics equipment have nothing to do with the transmission of a signal, nor are they incidental to that transmission. Even if the Commission were to construe obeying a broadcast flag as part of the reception of a signal, it would be insufficient to give the Commission jurisdiction over hardware devices. As the Commission has stated "[w]hile it might be argued that receiving facilities are incidental to radio transmission, the full extension of that argument would be unreasonable because it would require that all television and radio receivers be licensed as well as receive-only earth stations."[55]

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[50] 47 USC §§303(f)(h).
[51] It was based on these statutory obligations that the Supreme Court in *United States v. Southwestern Cable* determined that the FCC had ancillary jurisdiction over cable television. 392 U.S. at 173-174.
[52] *United States v. Southwestern Cable Co,* 392 U.S. at 164 (quoting CATV and TV Repeater Services, 26 FCC 403 (1959)).
[53] 47 USC§ 152(a).
[54] 47 USC §153(33).
[55] *Regulation of Domestic Receive-Only Satellite Earth Stations,* 74 FCC2d 205, 217-18 (1979) (explaining that because receive-only earth stations do not transmit, they are subject only to voluntary licensing under the FCC's ancillary authority over spectrum so that such receivers can obtain protection from interference.)

To the extent that the Commission has regulated consumer electronics devices in the past, it has done so only under explicit statutory authority. For example, the FCC required television sets to receive all UHF and VHF channels pursuant to the 1962 All Channel Receiver Act.[56] The Commission regulated closed-captioning pursuant to the 1990 Television Decoder Circuitry Act.[57] Most recently, the Commission promulgated regulations requiring television sets to include a V-Chip pursuant to Section 551 of the Telecommunications Act of 1996.[58] Not only is such an explicit mandate absent here, there is disagreement both by key members of Congress and the FCC as to the Commission's authority to require consumer electronics and computer hardware to obey copy protection mechanisms.[59] Draft legislation circulated by the House Energy and Commerce Committee that would provide such a mandate has only added to the debate.[60]

B. 47 USC Section 336 Does Not Give the Commission Authority to Require Consumer Electronics Devices and/or Computers to Obey a Broadcast Flag.

Nothing in the plain language or legislative history of Section 336[61] supports the notion that it vests the Commission with jurisdiction over consumer electronics devices and/or computers. The Commission specifies two provisions in Section 336 –

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[56] Pub. L. 87-529, 76 Stat. 150 (codified at 47 U.S.C. §§303(s), 330(a)).
[57] Pub. L. No. 101—431, 104 Stat. 960 (1990) (codified at 47 USC §§303(u), 330(b)).
[58] Pub. L. No. 104-104, sec. 551, 110 Stat. 56, 139-42 (1996) (codified at 47 USC §§303(x), 330(c)).
[59] *Compare* Letter from Senate and House Judiciary Committee Chairmen Leahy and Sensenbrenner to FCC Chairman Powell (Sept. 9, 2002) *with* Letter from Senate Commerce, Science and Transportation Committee Chairman Hollings to FCC Chairman Powell (July 19, 2002) *and* Letter from House Energy and Commerce Committee Chairman Tauzin and Ranking Member Dingell to FCC Chairman Powell (dated July 19, 2002). *See* Testimony of FCC Chairman Michael K. Powell, Agenda and Plans for Reform of the FCC: Hearing Before the Telecomm. and Internet Subcomm. of the House Energy and Commerce Comm., 107th Cong. 37-38 (2001) (stating that "there are issues about copyright and intellectual property protections .... [M]ost of those issues are outside the specific jurisdictional context of the Commission"); NPRM, Concurring Statement of Commissioner Copps (noting that "there is not a majority here to resolve the issue of the Commission's authority").
[60] A copy of the staff discussion draft and the section-by-section explanation is *available at* http://energycommerce.house.gov/107/drafts/dtvstaff.htm.
[61] 47 USC §336.

subsections (b)(4) and (b)(5).[62] But as discussed below, neither confers authority on the Commission.

The plain language of Section 336(b)[63] confirms this interpretation. Under Section 336(b), any regulations the Commission adopts pursuant to Sections 336(b)(4) and (b)(5) must be limited to those necessary for "*prescribing the regulations required by subsection (a)*."[64] Section 336(a)[65] requires the Commission, when issuing DTV licenses, to

> 1) …limit the initial eligibility for such licenses to persons that, as of the date of such issuance, are licensed to operate a television broadcast station or hold a permit to construct such a station…and
>
> 2) …adopt regulations that allow the holders of such licenses to offer such ancillary and supplementary services on designated frequencies as may be consistent with the public interest, convenience and necessity.

Thus, whatever rules the Commission adopts under Section 336(b) have to further Commission regulations governing either initial DTV licensing or the provision of "ancillary and supplementary services," which is defined as those

> A) for which payment of a subscription fee is required in order to receive such services, or
>
> B) for which the licensee directly or indirectly receives compensation from a third party in return for transmitting material furnished by such third party.

47 USC §336(e). The Commission's rules plainly state that "any video broadcast signal provided at no direct charge to viewers shall not be considered ancillary or supplementary."[66]

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[62] 47 USC §§336(b)(4) and (5).
[63] 47 USC§336(b).
[64] *Id.*
[65] 47 USC§336(a).
[66] 47 CFR §73.624(c).

Thus, while Section 336(b)(4) requires the Commission to "adopt such technical and other requirements as may be necessary or appropriate to assure the quality of the signal used to provide advanced television services, and may adopt regulations that stipulate the minimum number of hours per day that such signal must be transmitted," any technical regulation adopted under that Section must somehow be tied to DTV licensing or the ability of licensees to provide ancillary and supplementary services.[67] The same is true for Section 336(b)(5), which requires the Commission to "prescribe such other regulations as may be necessary for the protection of the public interest, convenience and necessity." The Commission confirmed this reading of Section 336 in its 1998 decision that set fees for ancillary and supplementary DTV services.[68]

In sum, neither Section 336(b)(4) nor (b)(5) can confer jurisdiction on the Commission to require consumer electronics devices to obey a broadcast flag because the flag is unrelated to initial DTV licensing, and, because the flag is intended only for the copyright protection of free, over-the-air video broadcasting, it is unrelated to the provision of ancillary and supplementary services.

VI. CONCLUSION

The Consumer Groups stress again that we support the policies behind the Copyright Act and the protection of copyrighted works, on the principle that the law of copyright ultimately leads to greater consumer choice of, and access to, creative works. In addition, we make explicit here that we do not oppose digital-rights-management technologies, including even a "marking"-based technology if necessary, so long as such technologies are consistent with reasonable consumer expectations and do not extend the scope of copyrights beyond the limits imposed in the Copyright Act. We are concerned

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[67] Thus, it is not even necessary to confront the question of whether requiring a broadcast flag has anything to do with the *quality* of a DTV signal. Clearly, it does not.
[68] *Fees for Ancillary or Supplementary Use of Digital Television Spectrum,* FCC No. 98-303 (November 19, 1998) at ¶2.

here, however, not with the general issue of copyright protection, but with the question of whether it is prudent for the Commission to proceed to attempt to erect a regulatory framework aimed at protecting digital-television content (but that, of necessity, must reach beyond the range of devices over which the Commission heretofore has been determined to have jurisdiction) in the absence of evidence that such a proposal will be effective, and in the absence of evidence that the particular problem identified by some content companies will ever occur, especially since doing so poses grave risks of economic and noneconomic costs to consumers. The Commission does not yet have either the authority or the factual record necessary to support proposed rules in this docket.

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APPENDIX A

Consumer Policy Questions and Issues Regarding the BPDG Proposal for Protecting DTV Content

Date: **July 10, 2002**

To: **House Commerce Committee Staff**

From: **Center for Democracy and Technology, Consumers Union, and Public Knowledge**

Re: **Consumer Policy Questions and Issues Regarding the BPDG Proposal for Protecting DTV Content**

We have been asked by Committee staff to provide a preliminary analysis from a consumer perspective of the Broadcast Protection Discussion Group's (BPDG) Final Report on the protection of digital television. We also have been asked to suggest questions that the Committee should consider with regard to the broadcast-flag standard and related legislation and/or regulation.

Introduction

We support the goal of promoting DTV[1] and recognize that the resolution of certain copyright issues could be important to achieving that goal. Further, we are committed to the protection of copyright, and we support creators' and publishers' prerogative to protect their copyright interests through technical means. Consumers have valid interests in this issue as well — in rewarding artists to ensure the availability of a rich variety of content, and also in the cost and convenience of new DTV technology and its impact on other media, like the Internet.

From a consumer perspective, key issues posed by the broadcast-flag proposal include —

- *How will the proposed solution affect consumers*? Will they have to buy substantial new equipment? Will they be able to exercise the fair use rights they have reasonably come to expect?

[1] "DTV" can be a confusing term, since "digital television" can mean anything from current digital delivery systems (e.g., satellite and cable digital transmission) to high-definition television schemes ("HDTV") to implementation of digital-transmission technologies as a way of using broadcasting spectrum more efficiently, resulting in higher-quality broadcasts. We take "DTV" as used in the context of the broadcast-flag discussion to refer primarily to HDTV and secondarily to any digital "high-quality" television content.

- *Are there downstream impacts on other computing technologies*? For example, will the BPDG's restrictions have a negative impact on innovation and the growth of the Internet? Will it set a precedent for broader government standard setting?
- *Will it be effective*? Will the proposal sufficiently diminish the copyright infringement at issue, or will additional steps be needed? Can it be implemented fast enough to promote greater DTV adoption?
- *What are the costs for consumers*? How much will implementing the BPDG proposal add to the economic and convenience costs of DTV and of other consumer technologies?
- *Do the likely benefits of the proposal outweigh the likely costs?*

In general, we believe that serious questions remain as to whether the broadcast flag proposal will be sufficiently effective. Congress should seek assurance that it will not have adverse consequences on consumers, including their ability to use their existing products, their ability to exercise legal and reasonably expected fair uses of content, and their access to future innovative technologies that might allow them to manipulate content in creative ways that are legal under copyright law.

Broader dialog is in order. The Committee should seek more information and use its standing to promote a fuller exploration of the consumer implications of implementing a broadcast flag, and to ensure protections for consumers in any legislative or regulatory endorsement of a solution like the broadcast flag. We believe that all sides in the debate would benefit from developing much clearer answers to these questions. We are eager to work with you, your staff, and the affected stakeholders to ensure greater involvement of the consumer perspective in these important deliberations.

I. Consumer Impact Analysis

The BPDG Final Report represents the deliberations of a group that was expressly limited in its mission, which was to "evaluat[e] **technical** solutions for preventing unauthorized redistribution"[2] of digital TV content (emphasis added). By intention, the Report did not seek to present a comprehensive means of controlling copying and transmittal of DTV content. By and large, we think that is a good thing — Congress should be highly skeptical about comprehensive solutions, and prefer incremental approaches undertaken by the private sector.

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[2] See Final Report of the Co-Chairs of the Broadcast Protection Discussion Subgroup to the Copy Protection Technical Working Group (hereafter "the Report") at Sec. 0.1.

Over time, however, as other technical and policy issues are dealt with, a broader consideration of consumer concerns will be needed, and this process must include consumer organizations as well as industry. Such a broader assessment of consumer impact would:

- Address the question of impact on **legitimate consumer uses** and **compatibility** of the proposal with home entertainment and computer equipement that consumers have already bought and will want to buy.
- Consider the **impact on innovation and on computing technologies**, and particularly whether a precedent is being set for government involvement in setting standards.
- Estimate the **cost** to consumers and other users of the new devices that may incorporate this standard.
- Fairly appraise the **effectiveness** of such a standard.
- Identify **alternatives** that may serve copyright and consumer interests.

As we recommend below, the Committee is now in a position to encourage broader dialog with consumer groups and other stakeholders about these impacts.

II. Compatibility, Consumer Inconvenience and Fair Use

The Report does not fully address the potential inconvenience and disappointment that implementation could visit upon consumers. In fairness, it would have been difficult for the Report as conceived to discuss fair use in detail. A copyright protection system should not deprive consumers of the ordinary, commonly accepted uses of their current products. People should not be expected to be required to go out and buy new products in order to conduct the legal activities they are currently able to conduct. And such a system should not limit innovation, especially innovation in rapidly evolving technologies such as the Internet.

- For example, if the proposal were implemented, could the Chairman record a show over the weekend at home and ask a staffer to watch it on Monday at work? Could the Chairman's staff record a DTV news show on which the Chairman appeared and send it electronically to the Chairman's district office, so he could watch it there? Could the staffer burn a news program onto a CD and give it to the Chairman to watch on his laptop computer in an airport?

- Today, a consumer can record a DTV show with her DTV-equipped computer on a recordable DVD, then watch it at night in her bedroom on a popular DVD player purchased years ago. She could also bring it to the home of a friend or family member and watch the show there. Will these instances of "fair use" be curtailed under the BPDG proposal?
- Is legacy equipment protected? That is, will consumers be able to get full use of their old TVs and VCRs? Will enforcement of the Requirements Document limit consumers' use of equipment they already own?
- To what extent will compliance with the Report conflict with reasonable consumer expectations about fair use, such as the ability to time-shift, play a recording on multiple devices, play a recording on device either inside the home or outside the home, etc?

In terms of future equipment, although a variety of different Authorized Technologies for output and recording would be permitted under the Requirements Document, it is not clear how they would interoperate. Issues that need clarification include:

- How will devices with different Authorized Technologies interoperate, *e.g.*, a DTCP-equipped DTV set-top receiver and an OCPS recorder? (*See* proposed Authorized Technologies.)[3]
- Will there be converters between different Authorized Technologies and, if so, what will they cost?

Congress ought to have a clear understanding of whether existing devices owned by consumers will work under the proposal, whether reasonable expected fair uses will be allowed, and whether technologies will interoperate. Overall, how much work needs to be done to understand how consumers will be educated as to these new requirements when, throughout the history of commercial television, interoperability and integration of television systems has been relatively seamless?[4]

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[3] Under the Requirements document, the only permitted digital outputs and recording technologies are those that the "enforcement body" (possibly the FCC) places on Table A. DTPC and OCPS are two mutually incompatible protection technologies proposed for inclusion on Table A. If both technologies are ultimately included in Table A, this raises the prospect of interoperability problems. These problems would only multiply as additional incompatible technologies were approved for Table A.

[4] We note that the FCC, one of the possible enforcement bodies for the proposed broadcast-flag scheme, historically has been concerned with promoting ease of use and

III. Impacts on Other Technologies

In order to fully protect DTV content across a range of future platforms, the BPDG plan necessarily impacts a broad variety of devices that might someday receive and distribute DTV broadcasts. Importantly, these include general-purpose computers and the Internet.

For example, a PC today could receive DTV signals and store them on its hard drive for playing, manipulation, and redistribution. Under the BPDG plan, computers would have to guarantee that such files were treated differently from the other files a user creates.

- What impact will implementation of the Report have on general-purpose computers? Will compliance require substantial changes to computing architecture, or diminish future innovation in technologies not contemplated in the BPDG model?
- What impact would compliance have on open source systems?
- Will the report set a precedent for government mandates of security standards with broad applicability, and with ramifications for future Internet development? The Internet's growth and development took place with relatively few government constraints — especially technical constraints. The result of that policy choice has been unexpected growth in applications of the Internet, including the World Wide Web, and rapid adoption of Internet technologies and applications by the public.

The Committee ought to have a clear understanding of whether substantial changes are contemplated in computing architecture, and whether the BPDG proposal would be viewed as setting a precedent for government involvement in setting computing standards.

IV. Effectiveness

Any Congressional action on the BPDG report would appear to have two primary goals: protection of DTV content from certain illegal copying and redistribution, and accelerating the rollout of DTV by providing such protections.

To what extent will the BPDG proposal diminish the copyright infringement in question? Implementation will no doubt deter many users of compliant equipment

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ease of integration for television viewers purchasing new equipment or maintaining legacy equipment.

from massive redistribution of DTV content. But questions remain about the extent to which illegal copying will be curtailed.

Analog Hole: Section 2.5 of the Report states that it does not address the so-called "analog hole" — the copying of DTV content after it is sent to an analog component. If the BPDG proposal is adopted, illegal copying could continue through the analog hole.

- In terms of quality, is there really a significant difference in quality between DTV content captured from digital receivers and DTV content captured from analog receivers and redigitized? (Generally speaking, the quality degradation of single digital-to-analog-to-digital conversion is unlikely to be to significant, and the degradation in quality of content currently traded on the Internet typically occurs not in the copying, but in the compression necessary for most Internet transmissions, whether captured from analog or from digital sources.)

The Report and the Requirements Document also do not mention peer-to-peer networking, one of the key problems listed in the studios' April and June reports to Congress.[6]

- What precedent does the broadcast flag set for the peer-to-peer problem? Will the content providers be pushing to close all the holes and address all these issues before releasing DTV content?

Legacy products will also diminish the effectiveness of the proposal:

- DTV receivers sold today do not have restricted outputs, and will not unless some protection system is implemented in coming years. Millions of unprotected legacy receivers — all allowing digital redistribution — will be in the public's hands before this system can be implemented.
- Within a few years it will be possible to do software-based demodulation of the DTV signal on a PC, potentially allowing millions to access DTV signals on computers without the broadcast flag requirements.

Together, these factors would appear to leave substantial possibilities for copying of protected DTV content, including allowing bad actors to obtain content and then redistribute it globally or over P2P networks. Congress should have a clear

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[6] "Content Protection Status Report," filed by the Motion Picture Association of America with the Senate Judiciary Committee, April 25, 2002. The same point was made in the MPAA's subsequent "Content Protection Status Report II," submitted in June.

understanding of whether efforts to address these issues will be sought — either by negating the use of legacy products already owned by consumers, or by somehow retroactively addressing issues of the "analog" hole.

Security: A related question is the security of the proposal. A proposal is less desirable if it can be easily defeated, especially if it can be defeated in ways that allow large scale violations while the average consumer is still inconvenienced.

Even on systems for which the Report is implemented, computer security experts commonly believe that most copy protection systems can and will be broken, and that 'marking'-based systems such as the broadcast flag are comparatively weak, in general. Footnote 3 in the Report states that "a more effectual technical and enforcement solution would be to encrypt DTV content at the source (i.e., the transmitter)." We are not suggesting that encryption would be more desirable, but footnote 3 reminds us that a system that fails to protect content adequately at the source is fundamentally vulnerable. Moreover, current DTV receivers do not have protected outputs today and will not in the future — unless some additional protection system is retrofitted for those legacy devices some years from now. By then, it is possible that millions of unprotected DTV receivers will be in the public's hands.[7] Accordingly, the Committee should consider the following:

- How will this system prevent unauthorized redistribution of content when: potentially millions of unprotected DTV receivers will be in the public's hands before this system can be implemented[8] and, within a few years it will be possible to do software-based demodulation of the unprotected DTV signal in PCs?[9]
- How else can the flag be defeated or evaded?

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[7] It is hoped that ATSC will improve the 8VSB signal and that many more broadcasters will be transmitting full power DTV signals in the next few years, spurring sales of DTV receivers.

[8] It seems possible that, subsequent to an announcement that future DTV receivers will have built-in limitations in compliance with this proposal, consumers may rush out to purchase the remaining stock of non-compliant DTV devices.

[9] At least one programmer has created an ATSC-compatible software demodulator that ran on a dual processor PC using two Athelon 1900-Megahertz CPUs. Today's Pentium high-end CPU runs at 2.53 GHz. Assuming the continued applicability of Moore's Law, we should see a 5 GHz CPU in consumer PCs within 18 months – sufficient to accomplish "soft" demodulation of an ATSC signal.

Impact on DTV Rollout: The Committee should explore in greater depth the premise behind the broadcast flag proposal - that DTV adoption will increase as high-value programming is put on DTV, and that this will happen once content is protected from unauthorized redistribution through systems such as that proposed by the BPDG.[10] The Committee should pursue the following question related to this premise:

- Can it be shown that the BPDG scheme will deter enough illegal copying to expedite the deployment of DTV, given that a significant amount of illegal copying will occur even if the proposal is implemented?
- Allowing for an FCC administrative process required by law and sufficient time for implementation, it seems unlikely that the first "compliant" and secure devices would be distributed before mid-2006.[11] Will adoption of the Report result in additional DTV content being released in time to aid in a transition by 2006?

The key question seems to be this:

- Does the Committee feel it has adequate assurances that adoption of the Report proposal via law and regulations will result in the timely release of

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[10] It is important to note that most experts cite numerous reasons for the slow rollout and adoption of DTV. At a recent Cato Institute Conference, Richard E. Wiley, former Chair of the FCC's Advisory Committee on DTV, listed seven "hurdles" other than the lack of copy protection, including: 1) the debate over "progressive" versus "interlaced" scanning; 2) the problems with VSB modulation standard and the effort to replace it with the COFDM standard; 3) the lack of DTV monitors that also include DTV receivers; 4) the lack of leadership of the broadcast networks in providing HDTV programming, including programming for which there are minimal copy protection concerns (*e.g.*, sporting events); 5) the inability of cable set-top boxes to pass through HDTV programming and the lack of cable-ready digital television receivers; 6) the FCC's decision not to require cable systems to carry both analog and digital broadcast stations during the transition period, along with the related decision to require cable systems only to carry a digital broadcaster's "primary video" program stream; and 7) the lack of consumer awareness about the transition and its ramifications. Remarks of Richard E. Wiley, "A Progress Report on the DTV Transition," Cato Institute. May 1, 2002, found at http://www.cato.org/events/020501pf.html.

[11] This assumes legislation sometime in 2002, 18 months to two years for a notice of proposed rulemaking and complex rulemaking proceeding (assuming no legal challenge in the Federal Court of Appeals), and two years to design, build and deploy products following promulgation of the rule. Such products may also have to be designed to include a technological measure, such as watermark-recognition technology, aimed at blocking 'the analog hole.' — see the Motion Picture Association of America's "Content Status Report II," Sec. 1.2, June 26, 2002.

DTV content that will impact the rollout of DTV, even if the analog hole and peer-to-peer issues have not been resolved?

The answers to these questions could help the Committee evaluate the extent to which the BPDG proposal would be effective in moving this nation to transition from analog over-the-air television to digital television. The consumer benefits from this transition (not just in better pictures, but also from the release of spectrum for important public-safety, technological, and economic benefits) could be significant. If, however, the BPDG proposal will not result in a significantly accelerated DTV transition, this casts the proposal in a different light.

IV. What Is the Monetary Cost to Consumers?

The Committee should evaluate the impact of the BPDG proposal in terms of the additional expense it may entail for the 107 million American TV households, both in terms of the cost of DTV products and in terms of the costs of other digital products. Those costs may be felt by consumers both directly (in terms of the need to buy new products) and indirectly (in terms of various ways increased product-development costs may be passed along to consumers). These costs may well delay rather than expedite the transition to DTV. For these reasons, the Committee should ask the commercial stakeholders to provide cost estimates for implementing the solution evaluated in the Report. These questions here are for the consumer-electronics companies (CE) and information-technology companies (IT).

- Section X-3 of the Requirements Document details a number of requirements for protecting Unscreened DTV data. Section X-4 provides similar requirements for protecting Marked Content.[12] The Committee should seek:
    - a block diagram for implementing the Section X-3 and X-4 requirements for protection in a typical DTV device (e.g., a set top DTV receiver, receiver in a DTV set, or DTV receiver card in a PC).
    - an estimate of the cost to engineer such protection in a typical product family.

[12] We understand the term "Marked Content" to refer generically to content that has been marked with the broadcast flag, or with any other technological mark designed to function similarly. See, *e.g.*, the Report Sections 4.6 and 4.7.

- the total estimated engineering cost for such protection for all company's current and planned DTV products.
- An estimate of the cost that will be passed on to consumers in order to comply with Sections X-3 and X-4.[13]

- In addition, we understand that technologies proposed as Authorized Technologies are governed by license agreements and require the payment of licensing fees both by implementers and Studios. (See Report Section 6.6.1 and Tabs F-1, H-1, and H-2.) The Committee should seek answers to the following questions regarding licensing fees and related costs:
  - What are the estimated annual costs of license fees for DTV product lines assuming adoption of the BPDG-evaluated technology and Authorized Technologies?
  - What other costs associated with adopting and utilizing Authorized Technologies are not included in the questions above?

[13] We understand that Section X-3 is not complete, but these questions can be answered on the basis of company's best estimate based on how it believes Section X-3 will be finalized.

V. What Are the Alternatives?

The Report is silent with respect to alternatives.[17] Value-added, competitively priced video-distribution systems may well stem the need to deploy a complex broadcast-protection system. With an eye to preserving trade-secret and other confidential information, we suggest that the Committee ask MPAA to confidentially survey its members and answer the following questions as completely as possible without revealing individual company plans:

- Are Studios planning to roll out digital distribution systems on the Internet and elsewhere, apart from their DTV plans?
- Will these systems include content slated to be protected under the system contemplated by the Requirements Document?
- If few digital distribution launches are planned, why not?

[17] There are, we believe, already alternative protected digital delivery systems that could efficiently deliver high-quality digital video content to consumers through channels other than digital broadcasting, reserving the broadcast channel for "ordinary" digital-television content.. In addition, scheduled secure content-delivery systems such as Microsoft's "Palladium" initiative may reach consumers before the "compliant" products called for in this proposal do so. Without either endorsing Palladium or assuming its effectiveness, we note that, as described in recent reports, the Palladium initiative has the potential to deliver the kind of protection of content sought by the Content companies, but without requiring potentially expensive and slow-to-implement government-imposed technology mandates. Our team of technical experts is divided on the question of whether Palladium will deliver all the protection it promises, but unanimous in believing it more likely to be effective than the broadcast-flag schemes under consideration here.

VI. Conclusion

More dialog must be had with stakeholders, including consumer representatives, to determine the costs and inconvenience of the proposed broadcast-flag system, and to determine whether it can be structured in such a way that responds to consumer interest in flexibility and backwards compatibility. Such a dialog will contribute to another crucial goal: evaluating the Report within a broader context. Some of these larger questions include: what is the precedent for the computer and the Internet; how could a broadcast flag evolve in ways that more deeply constrain consumer control; how does the broadcast flag fit with other DRM ideas, and what are the reasonable alternatives for protecting copyright interests, both in terms of business models and in terms of technology?

In summary, then, we seek to raise the following three sets of issues regarding the BPDG proposal:

- What impact will it have on consumers' ability to use their existing and future electronic equipment in ways consistent with copyright protection, including time shifting and moving legally acquired content from one device to another as they go about their daily lives? To what extent will it affect the development and deployment of new consumer and information technologies?
- There needs to be a realistic assessment of the cost-benefits: (a) how effective will the measure be at solving an identified and documented problem compared with (b) the costs in terms of product costs, limits on legitimate consumer activity, and convenience?
- Finally, from a consumer perspective, what assurance is there that the proposal, if implemented, would lead to the substantial release of digital content and the greater availability and affordability of DTV?

We hope that the Committee will ask the above questions and carefully consider whether enough is yet known about the possible impacts on consumers of implementing the proposal described in the Report. We do not stand in opposition to the principle of content protection for digital television, and we embrace the general principle of the need to protect copyright in the digital age. But we also believe that Congress, in its factfinding and legislative role, must vet and consider the impact on consumers of any content-protection system imposed by regulation. We stand ready to help address these questions.

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Public Knowledge is a nonprofit advocacy and educational organization that seeks to address the public's stake in the convergence of communications policy and intellectual property law.

Consumers Union, publisher of *Consumer Reports,* is an independent, nonprofit testing and information organization serving only consumers. Since 1936, the organization's mission has been to test products, inform the public, and protect consumers. Its advocacy offices and the Consumer Policy Institute address the crucial task of influencing policy that affects consumers.

The Center for Democracy and Technology works to promote democratic values and constitutional liberties in the digital age. With expertise in law, technology, and policy, CDT is dedicated to building consensus among all parties interested in the future of the Internet and other new communications media.

APPENDIX B

A Public Knowledge White Paper:
Harry Potter and the Prisoners of the DTV Transition

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A PUBLIC KNOWLEDGE WHITE PAPER

HARRY POTTER AND THE PRISONERS OF THE DTV TRANSITION

An Adventure in Digital Television Policy
(With apologies to J.K. Rowling)

BY MIKE GODWIN
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PUBLIC KNOWLEDGE

(Revised Dec. 6, 2002.)

"With the Internet we have the opportunity to distribute to millions of people for free – the Internet is an extraordinary opportunity, and yet a whole lot of the content community and the broadcast community and the status quo community are all organized to prevent the Internet from being the channel of distribution. ... I hope people will come back to Congress some day with a model addressed to how to use the Internet instead of fight it."

- Rep. Christopher Cox (R-CA), of the House commerce committee, at the Hearing on the Transition to Digital Television, Sept. 25, 2002

In the children's novel HARRY POTTER AND THE PRISONER OF AZKABAN, the young student wizard Harry Potter is called upon to cope with the horde of frightening creatures called Dementors who are chasing him. To make a long, well-plotted story overly short, a future version of Harry suddenly appears and waves his magic wand, reciting the spell "Expecto Petronum!" Thus Harry from the Future manages to scare away the Dementors, protecting the Harry of the present.

The transition from analog broadcast television to digital broadcast television (DTV), now an enshrined part of American broadcasting policy, faces its own set of Dementors -- a frightening horde of technical, legal, economic, and social problems. Taken together, the problems look as unbeatable as any

multitude of scary monsters, but making things worse is the fact that many stakeholder factions are at war with each other over issues such as technology mandates, copyright protection, fair use, and so on.

But what if we could somehow look back from the future to today's troubled present debate, wave our own wands, and come up with the spell that magically defeats the problems that bedevil the DTV transition? Such magic, of course, is beyond the abilities of mere "muggles" like us, but it is possible to look back from the future we have long been imagining -- one in which various consumer-electronics and information technologies have converged, and in which the broadband Internet reaches every home -- and come up with our own version of a magical solution.

We must begin, however, with a general survey of the problems each set of stakeholders believes lie at the center of the transition to DTV. While some might reasonably dispute some premise or point or other about each of these problems, *this essay treats all asserted primary problems of the warring stakeholders as essentially valid assertions*, but it also suggests that there may be a win-win solution for all the major players, especially consumers.

I. Problems for Content Industries

The motion picture studios, the national networks, and other companies that produce, publish, or distribute content are particularly concerned over the fact that DTV will mean that high-quality content will be broadcast and recordable by viewers, and perhaps recirculated on the Internet or through other media. Their argument is that digital content broadcast in the clear may be easily grabbed in high-quality form, and, as unprotected content, may be easily echoed to the Internet. This phenomenon, which some Content producers have characterized as a "Napsterization" of broadcast content, could lead to the undermining of the revenue value of high-quality content, which otherwise may be resold to local broadcasters through syndication or repackaged as VHS tapes or DVDs for sale or rental. Here the theory is straightforward: if viewers can snap up high-quality episodes of, say, "Law & Order" from the Internet, such viewers would no longer be part of the audience for rerun or syndicated episodes (thus undermining the value of advertising during reruns or syndicated broadcasts). Furthermore, such redistribution may undercut sales even of TV content repackaged as DVDs, the current high-quality digital-content delivery system of choice for the American consumer. The Content companies worry

that if the viewers are able to record TV content at home that is of the same quality as, or better than, the DVD version, they will redistribute the programming among themselves and will have no motivation to buy that DVD.

One fix for Content -- part of a solution that is currently widely advocated among Content companies -- might be to "mark" all commercial content that needs to be controlled (e.g., with the broadcast flag, or with a "watermark" technology). This "marking" approach must be coupled with a legal or regulatory mandate that some range of consumer equipment be designed henceforward to look for the mark in marked content, and then act upon it (or refuse to act upon it) in some agreed-upon way.

But a second major problem for Content has been this: Other technologists have argued that a "marking" approach creates an immense problem -- it requires a new regulatory infrastructure to mandate that an unprecedentedly broad range of technologies look for the mark in the marked content. It needs a government-administered standardization on the marking technologies, whether flag or watermark. Also, it essentially requires rearchitecting of broad sectors of the IT, Consumer-Electronics, and communications fields. (Some industrial sectors -- especially those that produce niche digital-manipulation devices, as well as new kinds of personal-video-recorder systems like TiVo, might be wiped out by the cost of the redesign, and by the limits on development of new products. At minimum, the marking approach requires the re-engineering of broad sections of product lines.)

Without government regulation and oversight, of course, the marking solution can't work. Manufacturers (possibly offshore) would have little incentive to encumber digital devices with the technical and processing features necessary to make them compliant with the marking rules. Import regulations would be needed to prevent entry of foreign-made noncompliant devices, and customs officials would be in the position of having to determine whether imported components are compliant, for example.

In addition, the proposed fix for Content may also require new regulatory controls over analog-to-digital and digital-to-analog technologies -- technologies that are currently ubiquitous and cheap, but that, because they may ignore or even strip out the broadcast flag or other kinds of marks placed in digital content, form part of what Content has termed "the analog hole." But control of analog-to-digital or digital-to-analog technologies may make

them more expensive and less functional. Worse, this may add hidden, unanticipated costs to devices not traditionally considered to be within FCC jurisdiction (e.g., astronomical observation tools and certain types of medical monitors).

Nevertheless, the marking-plus-regulation solution has appeal with many sectors of the Content industry. But this proposed solution to Content's problems puts Content at odds with some sectors of the IT industry, with the CE industry, and with consumers. This has led to the equivalent of trench warfare in the legislature, in the courts, and in public opinion. So far, there have been no clear victories for any faction of stakeholders.

But Content believes it *desperately needs a solution* to the problem of how easily its premium content is translated and distributed to the Internet. Content companies currently rely on being able to repackage and resell prime content in a number of ways in order to recover investment and production costs. As noted above, these include syndication and VHS and DVD repackaging for retail sale. These revenue streams currently are a major subsidy of new content production in the movie and TV worlds. Content feels its back is against the wall, and must use every strategy to regain control of its content in a digital world. Content companies believe the current slump in sales of music reflects what would face movie and television production systems if controls are not put in place as soon as possible.

II. Problems for Computer, Software, and Internet Companies.

Information technology companies are also facing flattening sales in many sectors, and so are acutely focused on the possibility that consumers will reject new products that may be more limited than older ones in how they deal with both commercial content and user-generated content. In the computer and software industries in particular, company leaders take as a given that consumers in these markets expect more and better functionality from both sectors on a relatively short cycle. It is unclear how consumers will feel about new devices that, while faster, have less functionality than the old ones do. Some feared responses: "Every cycle my computer spends on checking whether I'm making an unauthorized copy is a cycle it isn't using on my work!" "Why can't I move digital video that I myself made back and forth between my

computer and my DV camera?" "This computer takes longer to load media files than my old one did." And so on.

Plus, the regulatory scheme favored by Content has to make many classes of hardware and software "untamperable" -- that is, difficult to modify, or "closed." The problem here is that "open platforms," such as the PC and the Internet, have by their very openness encouraged innovation. Such innovation includes the Internet as we now know it, the World Wide Web, Linux and other open-source software, and graphical browsers. Not least important -- the rapid development in this sector has also led to technologies that make content-generation, such as filmmaking and music-recording, much cheaper and more accessible than it used to be. The GNU/Linux problem is particularly acute -- while Linux-based operating systems are widely regarded as one of the few remaining serious competitors to Microsoft in the operating-system market, a regulatory requirement that, say, Linux-based software media players both check for "marked" content and be "untamperable" would, in effect, outlaw Linux versions of such products. (Linux programs are accompanied by their "source code" when distributed, or else simply *are* distributed as source code, which means that they are inherently open and tamperable.)

But suppose the regulatory scheme, recognizing the competitive value of Linux and other open-source software, carved out an exception from the untamperability requirement. Not only would the exception add up to a big hole in the proposed content-protecting regulatory scheme, but it would actually put proprietary software companies at a disadvantage in competing with Linux in the media-player market (since Linux-based players could be modified by any programmer to add functionality and/or remove content protections).

In effect, the "untamperability" requirement creates a dilemma -- either permanently disadvantage open-source software (and perhaps lock in Microsoft's market dominance) or else permanently disadvantage proprietary software, including Microsoft's (and thus, in effect, promote Linux as a matter of a industrial policy).

For Internet companies, any regulatory obligation to monitor for copyrighted content signifies substantial redesigning of the Internet as it has existed and grown since its beginnings more than three decades ago. This is partly because the problem for Content of "Napsterization" (see Section I above) of large-

scale unlicensed copying is not merely that peer-to-peer applications are widespread, or that the number of peer-to-peer file traders is growing -- it is that peer-to-peer file-trading is, in a deep sense, a part of the Internet's fundamental design. (Specifically, the Internet was designed to allow the sharing of data and other resources among computers on a distributed, decentralized network. Digital music files, to take an obvious example, may be considered just another kind of data.)

Further complicating the Internet's fundamentally peer-to-peer character is a deeper problem: what each computer does, at a fundamental level, is make copies. It copies information from one part of memory to another, from memory to hard drive and back again, from memory to video and so on. The Internet itself also works by copying -- transmitted data typically are divided into "packets," which are then copied and recopied from computer to computer on the Internet until copies of all packets reach the destination computer and are reunited into a perfect copy of the transmitted information. Rearchitecting basic computer technologies to limit copying generally, or to police copying, risks affecting the fundamental functionality of computers, which in turn could affect their fundamental usefulness both to individuals and to industry.

III. Problems for Congress

For a number of policy reasons (perceived benefits to the public, more efficient use of the broadcasting spectrum, higher-quality broadcasts, and so on) Congress has mandated a transition from analog television to DTV.

Complicating this, the federal government has established the year 2006 as a nominal deadline on the transition, assuming at the time the deadline was set that the general public would see the value of DTV (particularly high-definition television, HDTV, but also other DTV features) and buy new TV sets, with digital tuners, to take advantage of these features. To oversimplify the matter for a moment, we may say that Congress essentially "loaned" broadcasters extra spectrum to develop DTV (and the DTV audience), but the "loan" has not produced the expected consumer buy-in.

Making things still more problematic, Congress has based its tax and budgeting decisions for the next few years on the assumption that the "analog spectrum" would be returned, and then could be allocated for public-service purposes

(e.g., unlicensed use or public-safety bands) as well as auctioned off for revenue purposes (e.g., for implementation of 3G or WiFi networks), with the latter perhaps generating tens of billions of dollars of income for the government.

As we approach the deadline, however, the increasingly evident lack of significant consumer purchases of (relatively expensive) DTV broadcast receivers means Congress faces the prospect of telling voters that their analog TVs -- including the new, big ones they buy just this year or next year, or in 2004 -- are going to be either wholly obsolete, or will require the purchase of some kind of converter box to continue to work. There is no serious doubt that voters will be unhappy about having to buy new, more expensive TVs or somewhat less expensive adapter boxes, just because Congress has said they must. (An unfortunate side effect of the converter interim solution is that, by adapting legacy devices to receive digital broadcasts, the government may in effect be equipping legacy home-entertainment equipment to facilitate the very kind of "analog hole" infringement that deeply troubles Content companies. Converter boxes will turn certain kinds of high-quality digital content into reasonably high-quality analog content, and such content may ultimately be redigitized and distributed for free on the Internet and elsewhere. Thus, part of Congress's solution to the transition problem may in fact worsen concerns for Content stakeholders.)

But the alternatives to the analog-spectrum give-back deadline have their own problems -- pushing back the transition date (or allowing it to be pushed back by broadcasters, who can rightfully claim that none of them has achieved the 85-percent penetration of DTV into the broadcast audience required by the federal mandate and so are entitled to a delay under the terms of the mandate) throws off budget and tax calculations, and would force a revenue shortfall, which in turn would force Congress to make other hard decisions that also may irritate or disappoint voters in other ways.

(Not incidentally, Congress has also attempted to promote adoption of broadband Internet services. As with digital television, consumer buy-in has not been as fast as hoped -- various Congressional leaders have blamed lack of compelling content as a cause of too-slow broadband subscriber growth. For e-mail and basic Web services, 56KB modems continue to be enough for most current consumers. The issue of promoting broadband adoption turns out to be linked to the issue of promoting DTV adoption, as we shall see below.)

IV. Consumer Electronics Industry Problems

Quite rationally, the consumer-electronics (CE) sector likes selling high-margin, high-quality, high-resolution TV display devices, but knows that just about all of its customer base for current sales of digital TV display devices gets its content from cable, satellite, or DVD, and scarcely ever directly from over-the-air digital broadcasting.

Tuner mandates (such as the recent dual-tuner mandate from the FCC) mean added expense on a per-unit basis at a time when CE was hoping that economies of scale would reduce per-unit cost and get more buyers into electronics stores for crisper or even "cinema-quality" TV displays. It bears mentioning in passing that CE companies now have an incentive to move entirely into the computer-monitor business and abandon selling "TV sets" (monitors plus tuners) altogether. This would allow them to escape the tuner mandate (they might in good faith sell modular dual tuner boxes on the cheap, but perhaps only a small fraction of Americans would buy them) and continue to sell high-quality visual displays that would function equally well on computers or as part of home entertainment systems -- attached, for example, to cable set-top boxes.

Complicating the question of requiring digital TV tuners, there's a looming problem that has not even begun to be addressed: In-the-field tests of digital tuner-equipped TVs suggest that the broadcast digital TV reception is not as reliable as is that for analog broadcasting, possibly due to lack of robustness of the 8VSB transmission standard (multipath interference tends to kill reception altogether, whereas in analog receivers it might merely cause tolerable static or "ghosts"). The New York Times reported the following on September 12, 2002: "In reception tests from the 64th floor of a New York skyscraper using a rabbit-ears antenna, Mr. Schubin and his colleagues were able to pick up only three of the nine digital stations in the New York area that were then broadcasting." Experiments in other cities are reported to have shown similar functionality problems. Given this unreliability of digital broadcast reception based on the 8VSB standard, Manhattan Institute scholar Thomas Hazlett has suggested, not entirely unseriously, that it would be cheaper simply to require viewers to *pretend* they can receive digital television broadcasts. See his article on Slate at <http://slate.msn.com/?id=2071935>.

In short -- the FCC is currently ordering the added expense for dual tuners, but the digital tuners may not work as well as analog TV receivers. This is not the kind of the industrial-policy decision that inspires consumer confidence and willingness to buy new TV displays -- a drop in consumer confidence that could seriously damage sales of CE products. Worse, some voters may decide to blame government policy decisions for their disappointment in this area as well.

V. Problems for Consumers

It is going to be difficult to persuade ordinary television consumers of the necessity of having to abandon or else pay for converter boxes for their perfectly functional analog television receivers.

It has already been effectively demonstrated that consumers do not yet value the proposed benefits of DTV enough to invest seriously in new equipment for it, except to the extent that a narrow subset of consumers prefers digital TV displays for purposes of DVD playback or digital cable or satellite content.

Those consumers who do not subscribe to cable or satellite, but who instead rely primarily on over-the-air broadcast signals, may find that their new digital TV set receives broadcast content less reliably than old analog set did (see, e.g, the discussion of the multipath interference problem in Section IV above). This government-compelled "downgrade" in reception reliability is likely to make a significant number of broadcast-reliant voters unhappy.

It must also be noted that efforts to control analog input-output interfaces, recorders, and display devices, in order to ensure the effectiveness of the broadcast flag or other "marking" schemes, may spell the end of plug-and-play interoperability among consumer electronics devices -- an interoperability that every Radio Shack or Sears customer, for example, has come to expect.

VI. Problems for Broadcasters

Broadcasters aren't just facing the problem that 8VSB-transmission broadcasts are currently less reliably received than analog broadcasts are. They're also

facing a worse problem: Soon the bill for "loaned" spectrum will come due (more precisely, the due date for return of the "analog spectrum" will arrive). The date will come when the mandated transition is set to happen. But based on the available evidence, most TV watchers haven't bought into the value of DTV yet. If the transition were to be imposed by Congress or the FCC on the date when it has been scheduled, there would be an abrupt decline in the advertising audience base for broadcasters (especially compared to the audience base for cable and satellite, which won't be affected by broadcasters' decline in audience and probably will opportunistically grab some or all of the disaffected broadcast audience).

Furthermore, the generally high costs of having to refit their broadcasting plants to enable DTV broadcasting are, for many broadcasters, an "unfunded mandate" -- expenses they are required by law to make as licensees (and may already have begun to make), but that do not (or at least not yet) translate into additional revenue.

Historically, one argument for promoting the transition to DTV has been to enable broadcasters to compete against the heretofore more reliable signal and multichannel capability of cable- and satellite-delivered TV content. It would be ironic if a policy designed to achieve the goal of preserving the tradition of free broadcast TV content (subsidized, of course, by advertising) were in fact to hasten the end of that tradition.

VII. What is the Harry Potter Fix?

This paper does not purport to address the purely political problems that must be overcome to address the range of technical and economic problems associated with a compelled transition to digital television. Instead, its purpose is to suggest an "outside the box" set of solutions -- the "magical" solution in which, regardless of the politics and regulatory complexity of all the issues surrounding DTV, content protection and the like, Harry Potter (under our guidance) waves his wand, says the magic words, and all major requirements of every major stakeholder group are met.

We begin with three basic steps.

Step One: Congress sticks with the 2006 deadline for return of extra spectrum, but allows broadcasters to choose which spectrum they return -- i.e., they can keep their old analog spectrum or their new "digital" spectrum, but must give back at least one or the other -- subject to a possible exception explained below. (This step assumes for the sake of simplicity that spectrum is fungible -- the actual implementation of the giveback will be somewhat more complicated due to technical allocation issues, but compared to the current state of affairs, allocating the giveback is relatively straightforward.)

Step Two: Allow broadcasters to continue analog TV broadcasting if they wish. (Some may choose to continue to experiment with digital, but advertising-based broadcasters will want the largest possible audience, and the biggest audience share of those receiving broadcast signals are doing so with "legacy" analog receivers, which continue to be sold in much higher volume than DTV receivers, even at this last date.) Broadcasters who may want to keep broadcasting analog signals but who also want to continue to build out to, or experiment with, digital broadcasting may choose to buy additional spectrum for that purpose, more of which should be available once the "loaned" spectrum has been reclaimed by the government. All broadcasters who continue to broadcast digital signals might be allowed to choose between the 8VSB standard and any other standard that might work more effectively (e.g., the COFDM standard now prevalent in Europe).

Step Three: As a condition of continuing to hold their licenses, the FCC must require all national networks to "netcast" their primetime and late-night programming, and all broadcasters to "netcast" their locally generated programming, over the Internet. Of course, Internet distribution of licensed creative content from TV and movie production companies will necessarily be worrisome for copyright holders -- such worries, they may interject at this point, are their very basis of their current marking-plus-regulation proposals like the broadcast flag -- so the FCC must also allow content licensors to insist that delivery of licensed content be done through one or more of the current or future secure digital multimedia content delivery systems of the broadcaster's choosing -- e.g., RealPlayer, QuickTime Streaming Video, Windows Media Player, or various Palladium-based schemes soon to be deployed. All of these systems, plus a number of others, offer reasonably secure delivery that prevent all but the most determined viewers from making unauthorized copies of content. (They are not entirely "hack-proof," but in this, they have very much the same described degree of functionality of proposed broadcast-flag and

other marking schemes -- in purely practical terms, they may already be said to offer more protection per dollar than marking schemes do, in part because they are less costly to implement.) Of course, broadcasters may also choose to deliver some of their own content -- perhaps advertising-subsidized local original programming -- in the clear, and there may also be instances in which copyright holders discover they want to authorize or even encourage broadcasters to deliver certain of the copyright holders' content in the clear.

VIII. What Are the Advantages of Harry's Magic Spell?

(1) First and foremost, consider the advantage to Content companies in the secure-delivery-system requirement: There is already actual market competition in this delivery-system sector and multiple major players, including Real Networks, Microsoft, and Apple. The existence of genuine market competition in the secure-Internet-delivery space is necessarily going to be more protective of copyright interests than any government-mandated standard could be. This is because market-driven DRM solutions can evolve more rapidly and respond more quickly to new copyright-security problems, etc. Although for antitrust reasons the FCC would certainly not want to allow Content licensors to dictate which one of the competing systems must be used (because that would permit them to leverage their copyright interests into control over commerce in areas outside of their copyrights), it would nevertheless be possible for the FCC to allow Content licensors to insist that licensees select a system (be it a codec, DRM, media player, or other component) which meets specified technology-neutral minimum security standards.

(2) There's yet another advantage: secure Internet delivery of high-quality content gives more Americans exposure to the quality of HDTV and other high-quality DTV offerings. Recent statistics suggest that PC penetration into American households approximates that of cable -- about 70 percent. Current PC monitors, including analog monitors, are excellent DTV (and even HDTV) display devices, at least for DVD currently. DTV-Internet offerings may spur demand for even better, "cinema-quality" devices.
Note: This plan takes into account that even the "fastest" home broadband Internet connections would require many hours of download time to deliver digital television, even if we assume the DTV is simply 480p content (DVD quality). True HDTV -- 720p, for example, or 1080i -- would require still more

time to download (speaking optimistically, about 19 hours of download time per hour of 1080i content, and 14 hours of download time for an hour of 720p content -- double those download-time numbers for a two-hour movie). This is almost certainly the explanation for the absence of any significant degree of HDTV infringement on the Internet currently, even at high-bandwidth-capable sites like research institutions and universities, and even though consumer devices capable of capturing HDTV to computer files already exist.
(See, e.g., the following URLs:
<http://www.projectorexpert.com/Pages/tvcards.html>
<http://www.hauppauge.com>, and
<http://www.digitalconnection.com/Products/Video/hipix.htm>).

Content companies -- some of whom, like CBS, already deliver original content, including entertainment content, in unprotected HDTV form now -- typically acknowledge that the broadcast-flag and other "marking" solutions for protecting high-quality digital television are *anticipatory* measures. That is, they are not addressing a current problem of infringement of true HDTV content (and not even of 480p digital content, which takes four hours or more to download per hour of content), but instead a problem they believe will appear when Internet bandwidth is expanded.

But we also know that, for infringers at least, waiting hours for downloads to complete has not historically been considered a serious problem, even on the current Internet. In addition, it is widely believed (although not undisputed) that Internet bandwidth to the home is likely to continue to increase over the coming years. Many of the early Napster users waited a long time for MP3 files to complete their downloading over 56Kb modem connections. The same is now true for those who download (typically degraded) movie and television files through current individual-subscriber broadband connections.

This aspect of file-trading points us to a larger fact about Americans in general -- to wit, we must keep reminding ourselves that actual "live" delivery of television is increasingly less important to Americans, which explains, among other things, the widespread adoption of VCR and PVR time-shifting. Current Internet bandwidth probably does not support "live" HDTV except on rare occasions, with long download times that require buffering and other interim fixes. But we may reasonably assume that properly jumpstarted demand for broadband-delivered DTV will fund the kind of infrastructural build-out required to enable quicker or even "real-time" HDTV content delivery. Non-simultaneous delivery of premium content probably can be facilitated by "buffering" through intermediate Internet servers, and may even constitute a

new application for pure "peer-to-peer" distribution. It would be a great irony if the Internet's "peer-to-peer" functionality, previously seen by many policymakers as an unmitigated problem, could be harnessed to enhance the delivery of commercial content in ways that financially benefit Content producers and distributors even as they increase consumer choice.

(For a discussion of how an asynchronous TCP/IP delivery model might work, see Craig Birkmaier's article at <http://broadcastengineering.com/ar/broadcasting_internet_broadcasting_rip/>.)

As noted at the outset of this essay, the Harry Potter solution assumes for the sake of the argument that Content companies are correct to believe there actually is the potential for serious infringement of HDTV content over the Internet, in spite of the large file sizes and tight bandwidth bottlenecks discussed in this subsection -- perhaps Content's belief is based on the anticipation of more and better bandwidth someday soon. If in fact there is not enough bandwidth to allow for the Harry Potter solution to work, it follows then that there also is not enough bandwidth to allow for Internet piracy of HDTV content. The Law of the Excluded Middle applies -- if there is bandwidth enough for infringement, then there's bandwidth enough for netcasting. Alternatively, if there is inadequate bandwidth for netcasting as I have described it, then there is inadequate bandwidth for the infringement threat as Content has described it.

(3) Still another advantage -- the Consumer Electronics sector still gets to sell high-quality computer monitors (essentially TVs without tuners), and may sell many more as audiences discover alternative ways to access DTV content. (This trend accelerates if the CE sector is released from its tuner mandate as part of an overall strategy to use the Internet to promote DTV.) CE may also continue to sell higher-quality analog display devices as well, of course. Analog displays can often be used for high-quality output of digitally originated content -- that, in fact, is what many high-quality computer monitors (more often than not, analog devices) are already doing. (See the discussion about capturing HDTV in the Note in the preceding subsection.)

(4) A major consumer advantage -- Under this scheme, broadcasters can experiment with offering "must-see" TV at times convenient to audiences, or more than once, with advertising that also may be seen more than once, or advertising that can be changed from day to day with the same program offering! As far as the TV viewer is concerned, there is an immediate improvement in convenience: Instead of waiting until Thursday night to see the new episode of "Friends," you click on the "Friends" Web-link anytime you want

to during the week the current episode is showing. (This is just one possibility -- there may be a lot of experimentation in varying this kind of offering. Another experiment may be to give viewers a choice between advertising subsidized "free" primetime content and subscription-based ad-free versions of the same programming -- in other words, a viewer could choose to treat a network more like NBC or more like HBO.) Perhaps you even could choose on Monday night to receive "Friends" on Wednesday night -- since "live" broadcasting is less relevant to many TV viewers, your advance choice allows the program to be buffered either in your system or in nearby servers, ready for the final click to order its display.
Such choice might matter more to TV viewers even than the high-quality images of HDTV. (We note in passing, that for 90 percent of Americans, 480p, the DVD standard, is the very definition of digital video content -- in the near term, digital broadcasts may be primarily in DVD-like formats, with increasing excursions into HDTV content as the consumer buy-in and broadband capacity both increase. A show like "Friends," which is character-driven and joke-driven, may need true HDTV visual quality rather less than, say, a network-based netcast of "Lawrence of Arabia" or "Attack of the Clones.")

IX. How Do Consumers Benefit?

The first and most obvious advantage is this: There would be no need to junk old TVs, which can still get old-style analog signal from broadcast, cable, or other means (mediated, perhaps, by "legacy" VCRs and TiVo-like programmable devices).

As far as consumers' copying expectations are concerned, we note first of all that consumers could still do fair-use time-shifting (and other legal but unlicensed uses of commercial content) with their VCRs, TVs, TiVos, ReplayTVs, eyeTVs, WinTVs, and other "legacy" digital and analog devices, including PC capture devices, so long as there is continued analog distribution. But, perhaps more important in the long run, market competition among secure delivery systems might also be expected over time to offer similar fair-use features in the purely digital arena as well, especially now that we've refueled the market for competition in that delivery-system sector. (Alternatively, if the new delivery systems do not adequately accommodate fair-use and other legal but unlicensed uses of commercial TV content that are government-supported as a matter of public policy, that might be cause for FCC regulation or other

government intervention. But for the purposes of this essay we begin by assuming that market competition will tend to approach user expectations on its own.)

But apart from protecting consumers from having to reinvest seriously in their home-entertainment systems before they are ready to do so, this proposal also promotes consumer adoption of DTV! As far as consumer experience of and acceptance of DTV go, under this scheme consumers will increasingly have the opportunity to compare on a reqular basis the differences between analog and DTV content, and make household IT, CE, and Content investment choices based on actual experience of the difference.

In the short term, consumers' investment in new equipment is primarily in (a) computers, which families are increasingly buying (or upgrading and replacing) anyway, and (b) broadband connectivity, for which Congress has been trying to spur demand, in order to fund infrastructural build-out, among other things. (Consumers with slower computers will likely find new inspiration for buying faster ones, assuming they have an interest in full-motion video content delivery through their PCs. Consumers with slower connections will likely find new inspiration for buying greater bandwidth. These factors may have the incidental salutary effect of reinvigorating the personal-computer market and Internet infrastructure growth as well as promoting DTV. It should also be noted here that households that buy TVs tend to keep them operating for 10 or more years -- what we know of computer-buyer patterns suggests that PCs are upgraded and/or replaced rather more frequently.)

X. What about the IT Sector?

Once Harry's wand is waved, the IT sector works without being encumbered by government-set technology mandates, and actually gets to compete for developing secure content-delivery systems. Computers and software remain largely open for industries and individuals to explore and innovate. Increased demand-driven investment in broadband infrastructure capacity creates an even broader "open platform" for new kinds of high-bandwidth products and services.

And if consumers don't like particular DRM solutions, they can either "vote with their feet" -- either moving to alternative delivery systems and media

players or sticking with analog content delivery -- or vote in other ways, perhaps by asking the government to intervene and regulate DRM. Provided the choice of secure delivery systems is left to the broadcaster (who might, in turn, give consumers some choices among multiple supported media players), it is to be hoped that competition alone will be enough to create the incentive for continuous innovation in these key delivery components, driving down price while improving ease of use, quantity of features, and quality of playback. (Competition may well be enough: Consumer feedback about copy-protection schemes revolutionized the software industry in the 1980s, for example -- the result was that most commercial software companies either abandoned copy protection or developed protection schemes, such as registration, that were less onerous for ordinary users.)

XI. And What Will the Broadcasters Get?

Broadcasters who want to continue both to offer analog signal to their audiences and to experiment in digital TV broadcasting, and who also have already invested in building out their digital-broadcast infrastructure, might be allowed to keep, say, a percentage of "loaned" spectrum as a kind of "good faith reward." These broadcasters can either continue to experiment with digital broadcasting offerings or sell off their spectrum grant to recover investment costs.

Local TV broadcasters in particular will benefit. Not only will they be able to preserve their existing geographically based audiences (by not requiring them to abandon their old TVs and buy new, more expensive ones) but they also will be able to reach new audiences around the world. This has the advantage of helping to fulfill the FCC's long-standing tradition to promoting diversity of programming -- an innovative local program has the potential to reach a national or international audience. (This has already been the experience of broadcast-radio stations that have echoed their programming to the Internet.) Plus, reaching that larger audience means more advertising dollars for advertising-subsidized broadcasts.

XII. What's the Biggest Win For Congress?

In a nutshell: Congress cuts the Gordian knot of the DTV transition problem.

It achieves the goal of promoting the transition to DTV, but does so without compelling any new expenses for TV consumers and without imperiling free broadcasting (indeed, it offers an expanded set of models for how free broadcasting can work profitably).

This policy not only promotes digital delivery of premium content, but also couples that to a policy that promotes content protection through market competition. (Content companies will also benefit from the competition in the DRM and media player space, of course.) Finally, it promotes both DTV buy-in and broadband buy-in within the same consistent policy structure.

The stalled development of DTV content delivery, including HDTV experimentation, will be jumpstarted by the Internet broadcasting ("netcasting") mandate imposed on broadcasting licensees.

Congress will get its "loaned" spectrum back, and will be able to auction most of it off, consistent with budgetary plans, while reallocating portions of the spectrum for particular public-benefit purposes, including the new possibilities enabled by setting aside unlicensed spectrum for public use.

In short: Every major stakeholder bloc will benefit, and consumers will be minimally inconvenienced, if at all, by the transition. All the prisoners of the DTV transition will be set free and are likely to see immediate benefits, due to Harry's plan's reliance on existing delivery systems, content protections, infrastructure, and other technologies.

Will Harry's wand-waving implementation of our plan work? Maybe, if we set our imaginations free enough to find alternatives to the current zero-sum deadlocks. Let's hope we don't have to wait until 2006 for the sequel.

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PREPARED STATEMENT OF OFFICE OF THE COMMISSIONER OF BASEBALL

The Office of the Commissioner of Baseball ("Baseball") respectfully requests that the Subcommittee include the following comments into the record of the hearing conducted by the Subcommittee on March 6, 2003. That hearing concerned the copyright issues raised by the electronic measures for protecting digital broadcast television signals, which is generally known as the "broadcast flag."

PROGRESS AND PROBLEMS REPRESENTED BY DIGITAL BROADCASTS

Baseball has a long history of making league games available both nationally and regionally through over-the-air telecasts. More games of Major League Baseball are available through over-the-air broadcast television each year than those of any other professional sport. Each of Baseball's most popular and widely-viewed games—the All-Star Game and the World Series games—is televised by a national, over-the-air broadcast network.

The quality of telecasting has grown steadily since the first broadcast of a Major League Baseball game (between the Brooklyn Dodgers and Cincinnati Reds) in 1939. We have seen the introduction of color television, instant replay, and other innovations such as the "catcher cam." However, the introduction of digital telecasts in high definition format represents a real leap forward for baseball fans—when a batter hits, a viewer can read the trademark on his bat; as an infielder takes a grounder, a viewer can see the stitches on the ball. In short, digital broadcasts in high definition can make viewers feel as though they are at the ballpark.

Baseball is excited by the prospects of having its games telecast in high-definition by digital broadcast television stations. Baseball was proud to be the first major league sport in America to be broadcast digitally in high definition when a game between the Cleveland Indians and Baltimore Orioles from Oriole Park at Camden Yards was telecast on September 16, 1997.

However exciting this may be, the reality of high definition broadcasts is that they are made digitally. While digital broadcasting permits unprecedented clarity for viewers, it also presents pirates with the unprecedented ability to make unlimited, perfect copies of the telecasts of baseball games and to distribute them worldwide via the Internet without the consent of Baseball or any Major League club. In the future, it is likely that such copies could be distributed on nearly a real-time basis with the actual live telecast of a Major League game.[1]

The potential availability of such high-quality, nearly real-time unauthorized copies threatens the marketplace for over-the-air broadcasts of Major League Baseball games. Pirated versions of Major League broadcasts by necessity compete with the legitimate broadcasts that are the subject of marketplace negotiations. As the experience of the recording industry with the Napster and KaZaA file-sharing services suggests, it is difficult to make the marketplace for copyrighted content work when the same content is made available for free by pirates over the Internet. In the face of such piracy, the marketplace might create incentives for Baseball and individual clubs to move high definition telecasts from digital broadcast stations to conditional-access programming suppliers such as satellite and cable providers. Moreover, the same reasons suggest that such piracy will impair the growth of the efforts by Baseball and other professional leagues to make their telecasts available over the Internet.

THE BROADCAST FLAG LIMITS PIRACY AND CREATES INCENTIVES FOR MAKING CONTENT AVAILABLE FOR DIGITAL BROADCASTING

Because of these concerns, Baseball supports the introduction of a robust and comprehensive mechanism to prevent widespread unauthorized distribution of digital broadcast television signals. To this end, a "broadcast flag"—whether in the form proposed in the context of the recent FCC rulemaking or some other form—would be a helpful technological tool to prevent the marketplace harms described above. A broadcast flag can be used to instruct the device receiving the digital broadcast (either the television itself or a set-top box) to limit the copying of the program being broadcast to lawful uses. By allowing copyright owners the right to protect their programs that are being broadcast digitally, the broadcast flag re-establishes the marketplace incentives for copyright owners to make their programming available to digital broadcasters.

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[1] As recently as last week scientists testing the next generation Internet transmitted the equivalent of two full-length, digital-quality movies over 6,800 miles in less than a minute. *See* Jeordan Legon, "Internet Speed Record Smashed," CNN.com (March 7, 2003), available at http://www.cnn.com/2003/TECH/internet/03/07/speed.record/ index.html. That speed is more than sufficient to be able to re-transmit a live telecast with no more than a minimal delay.

The broadcast flag therefore not only *protects* copyrighted telecasts, but it re-establishes the marketplace incentives for Baseball and other copyright owners to make their content available to digital broadcast stations. To the extent that consumers need a reason to buy television sets that can receive digital broadcasts and high-definition content, the availability of Major League games on digital broadcast television will help to provide a reason. Thus, the existence of the broadcast flag, by making copyright owners more willing to make their programming available for digital broadcasts, will also speed the adoption of digital broadcast television.

THE BROADCAST FLAG IS CONSISTENT WITH COPYRIGHT LAW

The concept of the broadcast flag also fits comfortably within existing copyright law. It is fully consistent with the fair use doctrine. Beyond the use of copyrighted works for legitimate academic, scholarly, editorial or satirical purposes, the sole "fair use" of copyrighted broadcasts recognized by federal courts is the "time-shifting" of those telecasts for later viewing.[2] To Baseball's knowledge, no copyright owner or group of copyright owners proposes that the broadcast flag eliminate the ability of consumers to time-shift the broadcast programs they enjoy. Instead, the broadcast flag will serve as a technological brake on the unlimited, unauthorized and illegal reproduction and retransmission of digital broadcasts. There simply is no "fair use" in making copies of copyrighted telecasts and making them available on the Internet; there is only theft.

Moreover, the broadcast flag's limitations on the technological ability of receiving devices to make unlimited digital copies for archiving or retransmission does not implicate the first-sale doctrine of 17 U.S.C. § 109. The first-sale doctrine allows the owners of *legitimate* copies of works to dispose of those *copies* in the way that they choose. However, the Copyright Act and its legislative history indicate that the broadcast of a copyrighted work to television viewers should not result in the creation of a copy, thus removing the first-sale doctrine as an issue.[3]

CONCLUSION

High definition digital broadcasting represents a substantial leap forward in the way baseball fans may enjoy Major League Baseball games. However, with the advantages that digital broadcast technology brings, it raises the possibility of significant disruption to the marketplace for broadcast programming. The broadcast flag would serve to protect the existing marketplace and to provide incentives for copyright owners to make their content available for high definition digital broadcast, thus speeding the transition to digital programming.

[2] *Sony Corp.* v. *Universal City Studios, Inc.*, 464 U.S. 417 (1984).

[3] *See* 17 U.S.C. § 101 (definition of "copies" and "fixed"); H.R. Rep. 94–1476 at 53 (noting that the display of a telecast on a television screen does not constitute a copy).