

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 DTV¹ 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.

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 equipment 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

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. DTCP 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

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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

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.

⁵ We are aware of the Viant study, which extrapolates from Internet Relay Chat (“IRC”) file exchanges. Because the dataset in that study is not representative of the larger phenomenon of file-sharing, we would like to see better and more relevant empirical data collection, such as that in the Ipsos-Reid report for music. See Filesharing and CD Burners Proliferate, June 12, 2002, available at www.ipsos-reid.com.

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.

- 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 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 implemented⁸ and, within a few years it will

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.

be possible to do software-based demodulation of the unprotected DTV signal in PCs?⁹

- How else can the flag be defeated or evaded?

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

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.

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

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 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).

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.

- 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.
 - 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?

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.

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?

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¹⁵ 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.

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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.

For further information about this analysis, please contact:

Jerry Berman, Executive Director, Center for Democracy and Technology,
202-637-9800, jberman@cdt.org

Alan Davidson, Associate Director, Center for Democracy and Technology,
202-637-9800, abd@cdt.org

Chris Murray, Telecommunications and Internet Counsel, Consumers Union,
202-462-6262, murrch@consumer.org

Gigi Sohn, President, Public Knowledge,
202-518-0020, gbsohn@publicknowledge.org

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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.

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