



# Electronic Frontier Foundation

Defending Freedom in the Digital World

## Who Controls Your Television?

How the Digital Video Broadcasting Project's DRM Standards Jeopardize Innovation, Competition, and Consumer Rights

Today, consumers can digitally record their favorite television shows, move recordings to portable video players, excerpt a small clip to include in a home video, and much more. The digital television transition promises innovation and competition in even more great gadgets that will give consumers unparalleled control over their media.

But an inter-industry organization that creates television and video specifications used in Europe, Australia, and much of Africa and Asia is laying the foundation for a far different future -- one in which major content providers get a veto over innovation and consumers face draconian digital rights management (DRM) restrictions on the use of TV content. At the behest of American movie and television studios, the Digital Video Broadcasting Project (DVB) is devising standards to ensure that digital television devices obey content providers' commands rather than consumers' desires. These restrictions will take away consumers' rights and abilities to use lawfully-acquired content so that each use can be sold back to them piecemeal.

Consumers would never choose this future, so Hollywood will try to force it on them by regulatory fiat. DVB's imprimatur may put restrictive standards on the fast-track to becoming legally-enforced mandates, and existing laws already limit evasion of DRM even for lawful purposes. In effect, private DRM standards will trump national laws that have traditionally protected the public's interests and carefully circumscribed copyright holders' rights.

Hollywood has long pursued this goal in the U.S., but its schemes in DVB have taken place behind the public's back and outside of scrutiny by elected officials. In this paper, we will summarize and expose Hollywood's plan.

The Electronic Frontier Foundation (EFF) is the only public interest group to have attended DVB's closed technical meetings. As a condition of participation, DVB imposed restrictions on our ability to report on these meetings. Now, after key parts of DVB's new DRM specification have been sent to the European standards body and may soon be provided to other EU regulators, we are releasing this paper to help consumer organizations and EU regulators understand the significant public policy implications of various DVB work items.

*CPCM: A System to Control Innovation, Competition, and Television Viewers*

Despite record profits in recent years, American movie and television studios have not relented in their cries that new technologies are a mortal threat to their industry. They sued to block the VCR and the first mass-market Digital Video Recorder (DVR) in the U.S., and, having failed to stamp out recording in those efforts, they have increasingly turned to creating restrictive technical standards backed by law.

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Through DVB, the studios have taken this strategy global. DVB's members include Hollywood studios, major pay TV providers, free TV broadcasters, and some of the largest technology companies in the world. The consortium was founded in 1993 for the specific purpose of crafting technical rules for receiving digital television. Currently, DVB standards are limited to getting TV signals to your house, but they do not limit what you do with those signals after they've entered the privacy of your home. Moreover, they do not require technology developers to pass a user-restriction litmus test before building new devices.

But that may soon change. Principally<sup>1</sup> at the studios' behest, DVB has been working since 2003 on an elaborate television DRM scheme called Content Protection and Copy Management (CPCM). Its unparalleled restrictions include:

- **Enforcing severe home recording and copying limitations.**

CPCM will allow content providers to apply copy restriction labels to broadcast streams. For example, a program could be marked as "Copy Never." In turn, your DVRs and other devices receiving the signal will have to obey and forbid copying even for home use. A content provider could opt to allow recording but still enforce a multitude of restrictions on copying to other devices.

- **Imposing controls on where you watch a program.**

Even if you are given permission to move a program to your laptop or other portable devices, "geography controls" may kick in and stop playback once you leave home or a particular locale. These restrictions may be enforced using tamper-proof GPS receivers built in to your devices. CPCM can also be used to block sending video to yourself over your own home network or the Internet, among other things.

- **Dictating how you get to share shows with your own family.**

CPCM can be used to examine, for instance, the frequency with which devices are connected to a personal network and determine whether your sharing is within an "Authorized Domain" Absurdly, DVB spent significant time arguing over what happens to a digital video in case of a divorce!

- **Breaking compatibility with your devices.**

You may have already invested in new high definition displays and receivers that rely on component analog connections or unrestricted digital outputs, but CPCM will allow the studios to arbitrarily block these connections. In other words, individual copyright holders can turn your gadgets into oversized paperweights. CPCM-restricted media will also be able to carry blacklists and revoke compatibility with particular devices that don't enforce Hollywood's restrictions sufficiently.

None of these restrictions need to be revealed in advance--you won't even know ahead of time whether and how you will be able to record and make use of particular programs or devices. The

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<sup>1</sup> Other major content providers also are interested in elements of CPCM, but the studios are the main driving force behind devising DVB's DRM schemes.



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restrictions can be changed at the whim of the rights holder. It may be that today you can record your favorite program and transfer it to DVDs for long-term storage. But next week, you could be prevented from recording or archiving to DVD.

Hollywood bills the intent of CPCM as "protect[ing]" and "enab[ling] business models," but, more precisely, they want to be able to curtail personal uses of television content that may disrupt their current business models. They also want to make you pay again and again to make legitimate uses of lawfully-acquired digital television content. For example, you've already paid for your cable subscription, but instead of being able to "time-shift" your favorite show to watch it later on the device of your choice, content providers want the power to force you to buy that show again on DVD or through another delivery mechanism.

What about stopping "Internet piracy"? CPCM has nothing to do with that -- it will fail to stop or even slow mass unauthorized online distribution of copyrighted content. No matter how elaborate the DRM, popular content will inevitably be decrypted by some percentage of users and then placed online, making it readily-available to everyone else.<sup>2</sup> CPCM's uniquely fine-grained restrictions are simply intended to make it more capable of arbitrarily stopping legitimate personal uses.

CPCM won't just harm consumers by limiting what they can do with TV content. It will also choke off innovation and competition by limiting who can enter the device market. Innovators won't be able to implement a publicly available specification to create a CPCM-compliant device. Instead, they'll be forced to beg permission from a CPCM licensing authority. Any novel technical designs and features will have to be cleared through this authority before they can be introduced in the marketplace.

Large incumbents -- particularly those who participated in DVB and could shape the compliance process -- might be able to handle the transaction costs of clearing this licensing authority. But for small firms and start-up innovators, those costs might be a prohibitive barrier to entry.

Open source tools will by definition be shut out of the market. The success of software like the GNU/Linux operating system and the Mozilla Firefox browsers demonstrate how open source software can provide benefits to users and meaningful competition in the market. Yet, because DVB's standards demand that manufacturers design their technologies to resist end-user modification, open source innovation for digital television will be blocked.

*Beyond DVB: DRM Backed by Law*

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<sup>2</sup> For a further explication of this point, see Fred von Lohmann, "Measuring the Digital Millennium Copyright Act Against the Darknet: Implications for the Regulation of Technological Protection Measures", 24 Loyola of Los Angeles Entertainment Law Review 635 (2004), available at [http://www.eff.org/IP/DMCA/DMCA\\_against\\_the\\_darknet.pdf](http://www.eff.org/IP/DMCA/DMCA_against_the_darknet.pdf).



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Hollywood also likes to say that CPCM is meant to protect its legal rights. But national laws have never given content providers such comprehensive control over users and innovation.

The studios have a plan to effectively change that, too, patterned explicitly after previous actions in the U.S. DVB is developing technical standards that are intended to serve as the basis for legal regulations that will mandate device manufacturers to use CPCM. These standards will up-end the current innovation environment and require innovators to first seek permission from a compliance body in order to create compatible devices.

DVB is currently revising the Common Interface (CI) standard, which devices can rely on to receive pay TV from many different providers. Today, CI makes sure that consumers cannot get TV they haven't paid for, but it places no restrictions on use after lawful, authorized reception; by design, consumers can choose any device they prefer, with whatever recording features they like best. In contrast, CI version 2 will force devices to respond to CPCM, and these devices will not be compatible with tools that rely on CI version 1.

Once the revision is complete, DVB will likely seek regulatory approval from the European Telecommunications Standards Institute (ETSI). ETSI's approval process is supposed to be a substantive examination, but because of the deference given to DVB on technical issues, DVB-proposed standards are generally approved as standards with nothing more than a cosmetic review. Formal adoption by ETSI will give DVB's anti-consumer standards a patina of public legitimacy undeserved by its private drafting process. The new CI standard could also become the basis for an EU directive.<sup>3</sup>

Meanwhile, free over-the-air TV is currently broadcast unencrypted, but DVB is designing a way for it to be encrypted by devices at the point of reception. Broadcasts will include a DRM "flag" - a set of data that rides alongside the broadcasted video and can signal whether content should be CPCM encrypted with a set of standard restrictions. The default will be to turn certain CPCM restrictions on.

Device manufacturers have no obligation to detect this broadcast flag, so Hollywood may soon go to regulators pushing for a mandate that bans non-compliant devices. The United Nations' World Intellectual Property Organization (WIPO) is currently presiding over negotiations for a Broadcasting Treaty, which could provide the legal framework for national technology mandate

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<sup>3</sup> Without changing CI or achieving further regulations, Hollywood could choose to only license content to providers who implement post-reception DRM. However, CI currently has significant inertia in the market -- because many providers and users rely on it, Hollywood would like to avoid this path. Certain European Commission rules also require manufacturers to implement CI, and thus altering this standard could speed along the intrusion of DRM into pay TV devices. The US equivalent in this domain is Hollywood's intrusion into the creation of the 'plug and play' standards for digital cable compatibility. With the Federal Communication Commission's blessings, the CableCARD system was allowed to include post-reception DRM. See <http://www.eff.org/IP/pnp>.



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laws.<sup>4</sup> Hollywood could also seek broadcast flag mandates by lobbying individual Member States within the EU.<sup>5</sup>

Finally, anti-circumvention laws hamper any technology creator or user from getting around DRM restrictions. These laws make it illegal to manufacture or use tools to circumvent the DRM without the copyright holders' authorization, even if the circumvention allows a user to exercise her legal rights. Thanks to two 1996 WIPO treaties and American media companies' lobbying, these laws already exist in many countries throughout the world.

In combination, these laws, regulations, and standards will expand copyright holders' control over the rights that innovators and users have traditionally held under national laws. To serve public policy purposes, every copyright system contains limitations and exceptions to the exclusive rights of authors and performers. Once DRM is in place and backed by law, however, technology creators and consumers will be hard pressed to exercise those rights.

### *Conclusion: Public Interest, Consumer Rights Advocates Must Fight Back*

DVB bills itself as an "open" consortium, but it was set up to do its work in secrecy and to preclude participation from all relevant stakeholders interested in consumers' rights or the public interest. First, the DVB Steering Board asserts exclusive control over how participants can publicly report on DVB committee deliberations. Second, participation is incredibly costly, requiring an annual 10,000 Euro membership fee and then funding to attend meetings in different cities around the world every month. Considering that a single standard takes years to complete – CPCM has been in the works for over seven years – the total cost of participation in DVB can run to hundreds of thousands of Euros. EFF was the lone public interest group in a room full of large, established companies.<sup>6</sup>

American studios' efforts at the regulatory level will pose a grave danger to the public interest, yet they may also provide an important opportunity. Public interest and consumer rights advocates may get a critical chance to have their voices heard and to convince policymakers to resist Hollywood's demands.

Public officials are likely to hear Hollywood threaten to withhold its content from national markets unless DRM is in place. Similar arguments were made when color television and VCRs were perceived as threats to American studios' business models. Despite the concerns expressed

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<sup>4</sup> See *Protecting Digital Broadcast Content From Unauthorized Redistribution – An Issue For All Broadcasters*, Presentation to the DVB World, Dublin, Ireland, March 2005, by Spencer Stephens, North American Broadcasters Association, <http://www.iab.ch/dvbworld2005.htm> and <http://www.iab.ch/dvbworld2005/NABA%20DVB%20World%20Presentation.ppt> Slide 19 explaining need for Broadcasting Treaty TPM provisions.

<sup>5</sup> EFF helped a coalition of groups mount a successful legal challenge to an extremely similar mandate in the US, see <http://www.eff.org/IP/broadcastflag>. Hollywood continues to press for that mandate to be reinstated.

<sup>6</sup> Our participation was made possible by a generous grant from the MacArthur Foundation.



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at the time, history has shown that the industry is able to adapt and thrive by engaging with new technology without additional government regulatory intervention.

The risk of a Hollywood boycott of digital television is highly speculative, but DVB's standards are a very real threat to consumers and technology creators. If and when American studios press for special regulatory protection for DVB's DRM standards, public officials must be urged to protect consumers' rights, sustain vibrant competition and innovation, and call Hollywood's bluff.

*For more information about DVB, contact us at [dvb@eff.org](mailto:dvb@eff.org) and visit <http://www.eff.org/IP/DVB>.*

*The Electronic Frontier Foundation is an international non-governmental organization with offices in Brussels, Washington, Toronto, and San Francisco. Founded in 1990, EFF is dedicated to defending consumer rights, freedom of expression, privacy, and innovation. EFF has hundreds of European donors and thousands of constituents throughout Europe.*