

**Market Conditions and Licensing
Practices in the Content Protection Industry:
A Report by the American Antitrust Institute**

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Contents

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| I. Introduction | 1 |
| A. The Commission’s Competition Policy Responsibilities | 1 |
| B. Competition and the Broadcast Flag Proposal | 2 |
| II. Summary of the Competition Problem | 3 |
| A. The Concerted Action Problem | 4 |
| B. The IP Licensing Problem | 7 |
| III. A Framework for a Competition Analysis | 9 |
| A. The Scope of the Analysis | 9 |
| B. The Industry Structure | 10 |
| C. The Relevant Markets | 11 |
| 1. The Relevant Markets for C-P Technologies | |
| 2. The Relevant Retail Market for Compliant Devices | |
| D. Market Power in the Relevant Markets | 13 |
| 1. Market Power Due to Monopoly | |
| 2. Market Power Due to IP-Encumbered Standards | |
| E. The Potential for Anticompetitive Harm | 15 |
| 1. The C-P Technology Function Markets | |
| a. Monopoly Price Levels | |
| b. Monopoly Maintenance | |
| c. Joint IP Licensing | |
| d. Concerted Non-Approval | |
| 2. The C-P Improvement Innovation Markets | |
| 3. The New-Function C-P Innovation Market | |
| 4. The Retail Market for Compliant Devices | |
| F. Efficiency Justifications for Current Licensing Terms | 19 |
| 1. Proffered Justification for Broad Non-Assertion | |
| 2. Proffered Justification for Approval Rights | |
| IV. Suggested Regulatory Remedies | 20 |
| V. Conclusion | 22 |

I. Introduction¹

The American Antitrust Institute (“AAI”) is an independent non-profit research, education, and advocacy organization that supports the laws and institutions of antitrust. Our website is www.antitrustinstitute.org. We believe that consumers rely on and benefit from competition in many of the markets regulated by the Federal Communication Commission (“FCC” or the “Commission”) for a variety of choice, the stimulation of innovation, and the availability of products and services at competitive prices.²

A. The Commission’s Competition Policy Responsibilities

The Commission’s well-known statutory mandate is to promote the “public interest, convenience, and necessity.” This standard encompasses an obligation to adopt rules and regulations that develop an open and competitive marketplace. In the words of the Supreme Court, “[T]he Government’s interest in eliminating restraints on fair competition is always substantial.”³ In some cases, the Commission has been specifically directed by statute to adopt pro-competitive policies. In others, the Commission fosters competition and consumer choice in fulfillment of its public interest mandate.

Thus, competition and regulation are clearly intended to coexist. Broadcasting, for example, which is perceived to be heavily regulated by the Commission, is not immune from the antitrust laws.⁴ The same applies to other areas of telecommunications.⁵ In the special case of statutory deregulation, such as the Telecommunications Act of 1996 as it relates to the markets for local exchange telephony, the Commission may even have the *primary* responsibility for promoting a competitive marketplace. Thus, in *Verizon v. Trinko*,⁶ the Supreme Court relied heavily on what Justice Scalia called the Telecommunications Act’s “antitrust function” in connection with the Commission’s regulation of local telephony. The more general principle is that where regulatory

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³*Turner Broadcasting System, Inc. v. FCC*, 512 U.S. 622, 664 (1994).

⁴*U.S. v. RCA*, 358 U.S. 334 (1959).

⁵See, e.g., *Sound, Inc. v. AT&T Co.*, 631 F.2d 1324 (8th Cir., 1980)

⁶540 U.S.____, 124 S.Ct. 872, 2004 WL 51011, 2004 Lexis 657 (January 13, 2004).

bodies possess jurisdiction related to the competitive conditions of the markets they regulate, the agency plays a leading role in insuring that pro-competitive market outcomes are achieved. The Commission possesses an “antitrust function” with respect to the proposed regulations discussed in this report.

B. Competition and the Broadcast Flag Proposal

We are concerned in this report with the narrow area of digital content protection (“C-P”), a technical means of controlling unauthorized re-distribution or copying of proprietary digital content by encrypting it. This topic is timely because the Commission is about to approve the use of already commercially available technologies (collectively, the “incumbent C-P technologies”) in connection with digital television (“DTV”) broadcasting. The purpose of the so-called “Broadcast Flag” proposal is to allow consumers to enjoy DTV broadcasting as a secure delivery method for protected digital content by using the encryption schemes in the incumbent and future C-P technologies.

Even though C-P technology is itself a narrow technical area, the incorporation of the incumbent C-P technologies into the Commission’s Rules and Regulations carries with it extremely broad implications, with potentially profound effects not only on the specialized C-P technology markets but also on the very substantial “downstream” markets that involve the manufacture and innovation of consumer electronics devices and computer equipment, *i.e.*, virtually any product or component sold or imported into the U.S. that is designed to receive, transfer, copy or display protected digital content.

An extremely broad range of market participants, therefore, must use the C-P technologies. Multiple C-P technologies are necessary because each has a specific function. Home recording of protected content on a DVD-recorder that uses a particular format requires a particular type of C-P technology. Recording on a different DVD format requires a different C-P technology. Recording on a digital VCR requires yet another. Displaying the digital signal on a monitor, yet another. Viewing programming with the use of a computer, still another.

Moreover, the use of each C-P technology requires a license, not only for the legal reason that practicing the technology without a license infringes the technology-owner’s patent, copyright, and trade secrecy rights, but also for the practical reason that market participants must have the encryption “keys” in order for the C-P technology to work. The maker of a variety of products will need a variety of C-P licenses.

The central concern that should occupy the goal of the Commission's competition policy in the Broadcast Flag matter is, to the greatest extent possible, for consumers to benefit from the fruits of robust competition among makers, purveyors, designers, and innovators of products in the retail market for "flag-compliant" digital devices. The Commission's ultimate concern, therefore, involves enhancing the welfare of the downstream consumers. The "worst-case" scenario would be the cartelization of the retail consumer electronics and computer markets as they pertain to devices that use or display protected content. Consumers would in that case risk a lack of choice in products, price levels that exceed competitive levels, and restrictions the level of output. The possibility of this worst-case outcome animates the Commission's competition policy in adopting rules and regulations related to C-P technologies.

In order to achieve this goal, however, the "upstream" markets for the inputs to product manufacturing, the technology markets for C-P technology, and the innovation markets related to these products, inputs, and technologies must all also be robustly competitive, because upstream market power or competition restraints can be leveraged into downstream markets. Consequently, the Commission's competition policy must concern itself not only with the markets in which consumers participate directly, but in all the markets that affect the supply chain, from first innovations through product retailing.

II. Summary of the Competition Problem

Competition is particularly susceptible to being undermined when competitors cooperate (*i.e.*, "horizontal concerted action") or when a license for intellectual property ("IP") is required before a firm may lawfully compete.⁷ Both of these problem areas—concerted action by competitors and mandatory IP licensing—arise in the Broadcast Flag context. The potential for anticompetitive harm, therefore, is particularly acute in the event the Commission approves the incumbent C-P technologies without also adopting sufficient antitrust safeguards. The AAI has formally appeared before the Commission to request that further action approving the incumbent C-P technologies not be taken unless such additional regulatory safeguards

⁷For both of these cases, the Federal Trade Commission and the Antitrust Division of the Department of Justice have jointly issued "Guidelines" intended to assist parties in avoiding antitrust problems. See *Antitrust Guidelines for Collaborations Among Competitors*, Issued by the Federal Trade Commission and the U.S. Department of Justice, April, 2000, available at: <http://www.ftc.gov/os/2000/04/ftcdojguidelines.pdf> ("*Collaborator Guidelines*") and *Antitrust Guidelines for the Licensing of Intellectual Property*, Issued by the U.S. Department of Justice and the Federal Trade Commission, April 6, 1995, available at: <http://www.usdoj.gov/atr/public/guidelines/ipguide.htm> ("*IP Guidelines*").

are also adopted.

A. The Concerted Action Problem

The concerted action problem arises because of the identities of the incumbent C-P technology owners and their relationships. As we discuss below in greater detail, there are no substitutes for the incumbent C-P technologies; they are all compliments. To manufacture and sell a DVD recorder that uses the DVD-R or DVD-RW format, for example, a license for CPRM-Video technology⁸ is required and must be obtained from the 4C Entity, LLC (“4C”). There is no other source of CPRM and no other C-P technology exists for a DVD-R recorder. The name 4C refers to the four founders, Intel Corporation, Matsushita Electric Industrial Co., Ltd., Toshiba Corporation and International Business Machines Corporation. Thus, this important incumbent C-P technology vendor is a consortium of two information technology (“IT”) firms (IBM and Intel) and two consumer electronics (“CE”) manufacturers (Matsushita and Toshiba) which together form the sole source of C-P technology for DVD-R recorders. Ordinarily, IT and CE firms would be considered competitors.

Consider next a computer company that wants to enable its products to send protected content to an external DVD-R recorder over a computer output. The manufacturer will need a license for DTCP technology⁹ to sell products with a port enabled to deliver protected content. Presently, this license is available only from the Digital Transmission Licensing Administrator, LLC (“DTLA”). There is no other source of DTCP, and no other C-P technology exists for computer ports. The founders of DTLA, sometimes called the “5C,” are Intel Corporation, Matsushita Electric Industrial Co., Ltd., Toshiba Corporation, Hitachi, Ltd., and Sony Corporation. Again, the incumbent C-P technology vendor is a consortium, in this case of one IT firm and four CE manufacturers which together form the sole source of C-P technology for computer-based outputs. Again, one would ordinarily consider the CE firms as competitors.

Connecting the DVD-R recorder to the computer is possible between a CPRM device and a DTCP device because 4C and DTLA have, by agreement, “approved” each other’s technology. The interoperability between CPRM and DTCP provides the consumer with useful interoperability, but it requires a the cross-license between these two consortia.

⁸“CPRM” stands for Content Protection for Removable Media.

⁹“DTCP” stands for Digital Transmission Content Protection.

Next, assume that at some future date a new, non-incumbent C-P technology receives FCC approval for transmission of protected content over a computer port. Will the consumer be able to connect his CPRM-compliant DVD-R recorder to a computer using this new C-P technology? The answer depends, of course, on the technical parameters of the two technologies. But it also expressly depends on the terms of the CPRM license. At present, CPRM is not approved for use with any other computer-based transmission C-P technology besides DTCP. Thus, even if approved by the FCC as an authorized C-P technology, the 4C Entity by its license terms has what is in effect a veto over whether the new computer-based C-P technology will interoperate with DVD-R recorders, or even whether the DVD-R recorder will remain compliant if it incorporates alternative FCC authorized C-P technology not approved by the 4C Entity.

Consumers expect to be able to actually watch protected content on products such as computer monitors and flat-screen TVs capable of displaying protected content in high-definition quality. The output that sends uncompressed digital video to a high-definition display uses HDCP technology.¹⁰ The device manufacturer (display or source device) must obtain a license for HDCP, which it can get only from Digital Content Protection, LLC (“DCP”). There is no other source for HDCP and no other C-P technology exists to send uncompressed digital output to a high-definition display. The founder of DCP is Intel, also a founder of both 4C and DTLA. Naturally, HDCP has been approved as a display output by DTLA and 4C.

At this point, two concerted action problems should be apparent. The first is the joinder of competitors to form 4C and DTLA in the first place. The AAI has suggested that the DOJ business review procedure relating to patent pools would have been appropriate and useful for these cooperating competitors, but for whatever reason 4C and DTLA have never availed themselves of this procedure. Both 4C and DTLA forcefully deny that they are engaged in the licensing of a patent pool.

This denial has been based on the fact that the licenses purport to grant adopters (*i.e.*, licensees) freedom from suit for infringement of “necessary claims” to practice the particular technology, rather than the right to use specific patents (with one exception—Victor Company of Japan’s D-VHS C-P technology—the licenses do not, in fact, identify any patent as “essential” or “necessary”), on the fact that these entities are also licensing trade secrets and copyrighted material, and on the fact that the adopters must also receive encryption keys in addition to the technical specification. But, to argue whether or not the 4C or DTLA consortia are licensing patent pools is to

¹⁰“HDCP” stands for High-bandwidth Digital Content Protection.

put form before substance. The DOJ's business review procedure has developed a good track record for giving guidance to competitors that wish to jointly license technology and at the same time avoid anticompetitive conduct.¹¹ The failure of 4C and DTLA to submit to the DOJ business review procedure may not disqualify these certifications, but it certainly creates the need for a careful review of the ramifications of further action by the Commission, particularly with respect to the issue of whether the founders of these consortia are skirting the DOJ's criteria for pro-competitive joint IP licensing, in effect, agreeing not to compete among themselves or agreeing to forestall outsiders from entry.

The other—and perhaps more serious—concerted action problem arises out of the cross-approval rights as to other C-P technologies which the incumbents in their licenses have reserved for themselves, irrespective of FCC authorization. By what criteria does an incumbent “approve” a new C-P technology? Given that such approval is necessary as a pre-condition to the introduction of an interoperable device, do such approval requirements create disincentives for the development of new C-P technologies?

Admittedly, interoperability requires technical feasibility, and it may even be uneconomic for a firm to attempt to develop a C-P technology that performs the same function that competes with an incumbent, so the current situation in which all C-P technologies are compliments may persevere. But even were that to be the case, it does not address the other serious competitive problems that may arise. These involve how improvements and innovations to existing C-P technologies will be handled, interoperability with (and thus the introduction of) new functions (such as new recording formats, or not-as-yet conceived of innovations), and the ability of the incumbents to leverage their control of the C-P markets into the downstream markets for IT and CE products.

In any case, given the control of the incumbent C-P technologies by the six firms that own CPRM, DTCP, and HDCP, the failure of one or more incumbent to approve either a new C-P technology or an innovation or improvement to an existing C-P technology may well constitute an agreement in violation of Section 1 of the Sherman Act. It is a technical matter whether a new, FCC-approved C-P technology can be designed to interoperate with the incumbent C-P technologies, and such matters should be subject to private negotiations or standard setting procedures. But for the incumbents to retain the unilateral right through their licenses to withhold approval, or otherwise escape

¹¹The DOJ's Business Review Letters are available at: <http://www.usdoj.gov/atr/public/busreview/letters.htm>.

any legal duty to negotiate in good faith or cooperate with new entrants, is to taunt the principles of antitrust law, and open the door to a range of conduct that resembles a group boycott.

Even in the case in which interoperability may not be important, firms offering devices with new C-P technologies are still likely to have to be an adopter of at least one incumbent technology. The current C-P licenses prohibit adopters from licensing or using “non-approved” C-P technologies in its products (whether or not they have been authorized by the FCC). If an adopter violates these compliance criteria its license for the incumbent technology may be revoked. Given that Commission review is designed to ensure the integrity of any authorized alternative C-P technology, such a restriction has no legitimate justification, and, from the perspective of the retail CE and IT markets, may constitute a prohibited horizontal restraint.

B. The IP Licensing Problem

FCC regulations have long required that the availability of both analog and digital broadcasting equipment not be encumbered by unreasonable royalty or licensing policies of patent holders. The Commission recognized this principle in connection with the interim approval of C-P technologies in the Broadcast Flag proceeding by requiring in its *Report and Order* that commercially available C-P technologies “be licensed on a reasonable and non-discriminatory [‘RAND’] basis.”¹²

The primary benefit of RAND licensing terms, and the reason for their prevalence, is that RAND licenses tend not to offend the antitrust laws. On the other hand, deviations from RAND terms invite antitrust scrutiny, because they raise the specter of anticompetitive foreclosure effects or the exercise of market power. In either case, the issue of whether a technology license is RAND or not requires the tools of antitrust, not only to define RAND in the given circumstances, but to examine the structure of the industry, define the relevant markets, and determine whether any observed deviations from RAND (or any other suspect practices) provide evidence of a present or probable future violation of the antitrust laws.

License terms that are RAND imply that the royalty fee charged is reasonable. But a license which calls for a reasonable royalty can still deviate from RAND terms by, for example, including exclusionary or discriminatory provisions. The incumbent C-P licenses deviate from RAND terms primarily where they contain a mandatory

¹²*Digital Broadcast Content Protection*, MB Docket No. 02-230, *Report and Order and Further Notice of Proposed Rulemaking* (rel. Nov. 4, 2003), at ¶55.

reciprocal non-assertion provision. The effect of such a provision is to require adopters to agree to forego royalties on IP they might own that constitute a “necessary claim” to practice the specification being licensed. The “non-assert” grants royalty-free rights not only to the licensor, but to all co-adopters, as well.

The incumbents have a legitimate interest in avoiding being “held up” or “blocked” by an adopter who discovers that it owns IP claims essential to practice the technology being licensed. The standard RAND solution to this problem is for adopters to agree to license back to the licensor (and, in this case, to all co-adopters) their own essential IP for a reasonable royalty. This clears blocking positions, so its effects are pro-competitive. Beyond what is essential to practice the specification, however, licensors have no legitimate claim on the IP rights of its adopters. Nor do licensors necessarily have a legitimate right to require an adopter to license its IP to them (or anyone else) royalty-free.

With respect to future innovations, requiring an adopter to enter into a so-called non-exclusive “grantback” provision can also be pro-competitive. Such provisions ensure that the licensor is not prevented from competing effectively by being denied access to improvements to its own technology. But such provisions related to future innovations should not only be non-exclusive, they should yield a reasonable royalty, for the obvious reason that requiring a royalty-free grantback is a disincentive for adopters to innovate.¹³

The non-assertion provision in the incumbent C-P technology licenses go far beyond what is necessary to clear blocking positions or provide the licensor access to the innovations of others. Both the overly-broad scope of the incumbents’ IP non-asserts and their royalty-free basis are anticompetitive. If the incumbents have the right to change or update the specification as they see fit, there is nothing to prevent them from free-riding on an adopter’s IP. New, patented technology can simply be added by the licensor to the C-P Specification and then used by the licensor (and all its adopters) royalty-free based on the non-assert. Since the non-asserts do not provide for RAND royalties to IP owners, such a maneuver by the incumbent licensors would be, in effect, a confiscation of an adopter’s IP. Such a provision is not RAND, is not commonly found in IP licenses, and because it deters innovations that improve existing C-P technologies or create new ones, amounts to an agreement not to compete on innovations in the C-P space.

¹³See *IP Guidelines*, at §5.5.

III. A Framework for a Competition Analysis

Whether a collaboration among competitors in any given circumstance poses a competitive threat requires consideration of the basic principles of competition policy, including those policies embodied in antitrust law. Similarly, whether a required IP license is being offered on RAND terms also requires such a competitive analysis. This remainder of this report suggests a framework for performing such an analysis in the context of the Broadcast Flag proposal.

A. The Scope of the Analysis

A competition analysis in connection with a rulemaking proceeding need not and should not be performed with the objective of proving, as in a court, that an antitrust violation has occurred or will imminently occur. The scope of the analysis and the standards to be employed should be sufficient under the circumstances to do the job competently. The threshold question is whether a competitive problem will be exacerbated or created upon the adoption of the proposed rules. If so, the second question is what to do about it. This requires an assessment of the costs of proposed solutions compared to the severity of the potential for anticompetitive harm

Thus, the Commission should strive to adopt regulations that reflect pro-competitive policies utilizing the tools of antitrust for that purpose. The competitive analysis need not be daunting, nor need pro-competitive rules be overly complex or ambiguous. The following six steps would fulfill the requirements of a competitive analysis:

1. Gain an understanding of the structure of the industry;
2. Define the “relevant markets;”
3. Identify whether firms in these defined markets have market power;
4. Identify potential anticompetitive harm, *i.e.*, the improper use by firms possessed of market power to use their power for anticompetitive purposes;
5. Consider any proffered economic justification for the conduct identified as anticompetitive, and, if necessary,
6. Fashion an appropriate rule.

B. The Industry Structure

The market structure implicated industry can be considered simple, consisting of three segments, shown below in Figure 1:

Figure 1:

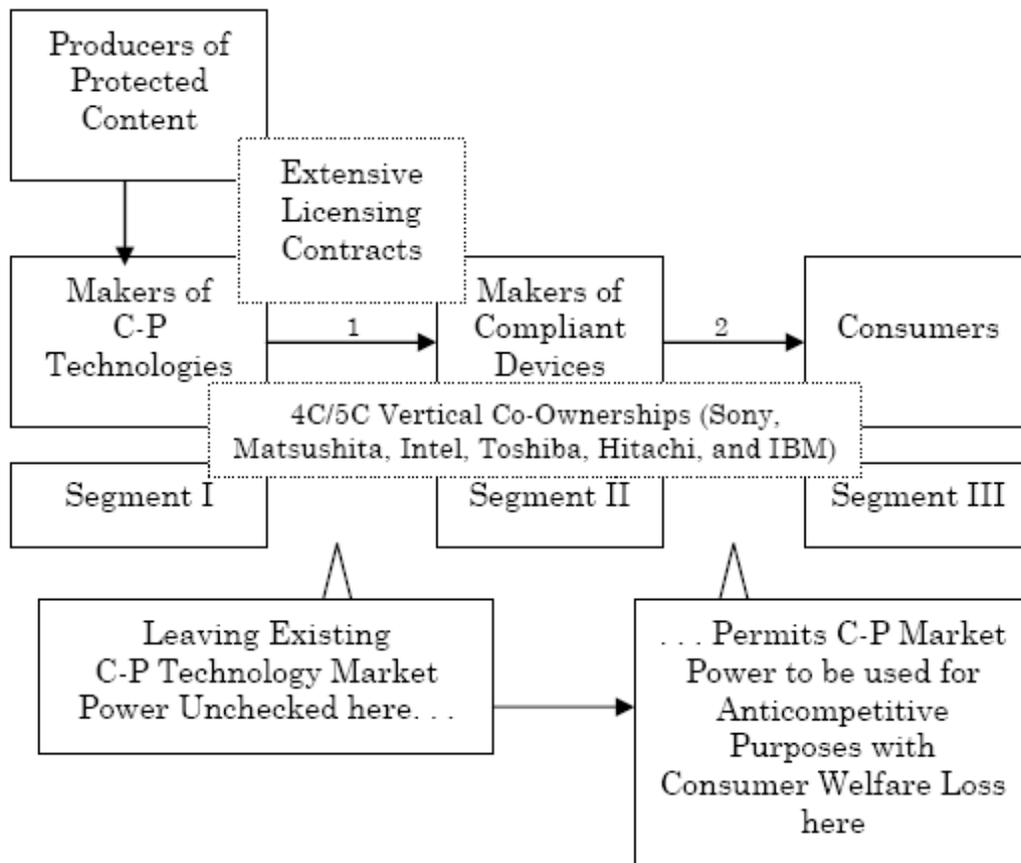


Figure 1 attempts to combine the idea of industry “Segments,” defined by the firms that operate in them, with the concept of “Markets,” depicted as the arrows marked “1” and “2” between the segments, where trading takes place.

Market 1 represents the markets for C-P technologies used as inputs by CE and IT manufacturers in Segment II. Market 1 includes a multiplicity of sub-markets for complimentary technologies as well as “innovation” markets for new C-P technologies. Thus, Segment I includes not only the incumbent C-P technology vendors, but all firms

that can potentially enter into the business of developing and selling C-P technologies.

Market 2 is the retail market for flag-compliant devices. Firms in Segment II are aware that the business of manufacturing flag-compliant devices is impossible without C-P technologies, *i.e.*, they must be adopters. For Segment II firms, C-P technology is an “essential facility.” Segment III is the retail sector, occupied by firms that sell products to consumers.

The vertical integration of the incumbent C-P firms is shown by the rectangle in the center, which reflects that the 4C/5C firms occupy all three segments. Thus, the “founders” of the vendors of the incumbent C-P technologies are also adopters.

The uppermost left-hand box in Figure 1 indicates that C-P technologies owned by the Segment I firms require approval by the producers of protected content, *i.e.*, the movie studios. Both the Segment II manufacturers and the content producers have entered into extensive licensing contracts with the Segment I firms. In these licenses, the movie studios constitute adopters, albeit of a separate class from the adopters in Segment II.

C. The Relevant Markets

1. The Relevant Markets for C-P Technologies

Broadly defined, the market for C-P technology is coterminous with Market 1, the interface between Segments I and II. But to consider the integrated C-P market as the relevant market for the competitive analysis would be to group a multitude of product definitions together on the strength of a general similarity and would not be economically justified.

Since none of the existing C-P technologies are substitutes for one another, because each was designed to perform a specific C-P function, the economically meaningful relevant market definitions are the narrowly defined “function markets” drawn according to product substitutability. There are, using this approach, multiple relevant markets between Segments I and II, each currently occupied by a monopolist (*e.g.*, 4C, DTLA, and DCP).

In addition to the Market 1 function markets, Segments I and II are connected through

“innovation markets” for C-P technologies that do not yet exist.¹⁴ The innovation markets fall roughly into two categories, innovations that improve existing C-P technologies and innovations that relate to entirely new functions. To summarize, the relevant markets in Market 1 are the multiple function markets, an improvement innovation market, and a new-function innovation market.

Competition in Market 1, therefore, can take place in a variety of contexts. Each relevant function market may draw competition, for example, if a new entrant were to develop a close substitute for an incumbent C-P technology, for example, a new C-P technology for DVD-R or -RW recorders to compete with the CPRM-Video monopoly. Technology in a relevant function market should be considered a competitor to an incumbent only if it provides the Segment II-only buyer (*i.e.*, a firm that is not also member of the 4C/5C consortia) with a choice of technologies to accomplish the same functionality.

Alternatively, and potentially more importantly, innovations can develop that provide improvements to the existing incumbent technologies. Competition in the improvement innovation market requires firms to invest in and develop improved versions of the existing C-P technologies.

Finally, a firm may invest in and develop an innovation to serve an entirely new function, such as a new recording format or transmission mechanism. Such new C-P technologies may have no close substitute, but the freedom of firms to enter Segment I to develop them is an important competitive value that will affect the availability of new functionalities downstream.

Competitive conditions in Segment I determine the choices facing the Segment II firms. A competitive C-P market suggests multiple products that provide the same or similar functions, perhaps with a range of features, approaches to implementation, costs, and design parameters. Moreover, competitive conditions allow for the prospect of improvements to existing technologies or those related to entirely new functions.

2. The Relevant Retail Market for Compliant Devices

In contrast to the highly specialized relevant markets for C-P technologies, the relevant market for “flag-compliant” goods is quite broad and consists of numerous vendors that offer a multiplicity of competing close substitutes. Clearly, the retail market can be sub-divided by product type, but there is little reason to do so. The

¹⁴Innovation markets are discussed in the *IP Guidelines* at §3.2.3.

common feature that defines the relevant retail market is that the products included in it are all designed to handle protected digital content.

D. Market Power in the Relevant Markets

1. Market Power Due to Monopoly

As monopolists, the incumbents currently enjoy market power, the constraint of which is one of the primary benefits of promoting competition in the relevant C-P markets. The present monopolistic C-P markets provide “take-it-or-leave-it” solutions for Segment II firms, with prices, functions, implementation parameters, and the scope for design freedom chosen for them by the incumbents.

The measure of the incumbents’ market power does not fit into the approach to product market definition taken in the DOJ/FTC Horizontal Merger Guidelines. Market power (or dominance, or monopoly power) is thought of in the Merger Guidelines as the power to raise prices above their competitive levels. The use of a market power analysis to define the relevant product market is unhelpful here because, as fully monopolized markets, no percentage price change of any magnitude can induce a buyer to switch to a substitute. The Segment II manufacturer of a DVD player cannot switch from using CPRM-Video (and thus choose not to become its adopter) to another, competing technology, for the simple reason that none presently exists.

Incredibly, some incumbents deny that there is a lack of choice in C-P technologies currently facing firms in Segment II. As the 4C Entity put it, “Simply, no manufacturer is required to use 4C’s technology.”¹⁵ In fact, any manufacturer who wishes to sell a DVD recorder in the U.S. does indeed need to use 4C’s technology if it intends to offer a product with the features consumers expect, *i.e.*, recording on the most prevalent DVD format.

2. Market Power Due to IP-Encumbered Standards

The source of the incumbents’ market power does not depend on the narrow function market definition of the relevant markets, which leads to the monopoly result. Alternatively, the incumbents’ market can be likened to the control by each of them of

¹⁵*Reply of 4C Entity, LLC Supporting Certification of CPRM-VIDEO, In re: Digital Output Protection Technology And Recording Method Certifications*, MB Docket 04-62 (Apr. 16, 2004), at 16.

a *de facto* industry technical standard for its respective function.¹⁶ It is beyond reasonable dispute that the incorporation of proprietary IP into a mandatory technical standard (*e.g.*, a compliance standard) can enhance the value of the IP and yield its owner market power that exceeds the market power that could have been derived from the merits of the technology alone.¹⁷

It is noteworthy that had the incumbent C-P technologies been developed in the context of *de jure* technical standards adopted by an accredited standards development organization, the incumbents' market power would have been considerably attenuated. Approval of C-P technologies without sufficient regulatory safeguards will undeniably function as if they were industry compatibility standards encumbered by IP rights whose owners have made no *ex ante* assurance that the essential IP will be made available to industry participants on a RAND basis.

Thus, whether the Commission intended it or not, the entry of broadcasting into an area dominated by existing privately-controlled C-P technologies will enshrine in federal regulations Specifications arrived at by parties who circumvented the formalities of technical standard setting. Clearly, efficiencies and expediencies exist in eschewing formal standard setting and arriving at technical standards as "consortia" or "working groups." For example, a proposed ISO standard can take up to 16 years for approval, whereas a technical standard in current market conditions may be needed immediately. If informal arrangements are problematic it is only because they lack procedural safeguards characteristic of formal standard setting bodies. Because such bodies have a tradition of constraining market power through pro-competitive procedural safeguards, the standard setting context can suggest solutions to the anticompetitive problems identified in the next section.

¹⁶In fact, the present situation goes beyond the control of a "technical standard," either a performance standard or a design standard. What is involved here is control of an essential *technology*. But for the purposes of the discussion of market power in the text, the incumbent C-P technologies can be analyzed as IP-encumbered design standards.

¹⁷The AAI's brief in the case *In re: Rambus, a Corporation*, FTC Docket No. 9302, presently pending before the Federal Trade Commission on Appeal from the Denial of Complaint Counsel's Administrative Complaint, has been submitted to the Commission as an attachment to AAI's *ex parte* notice of its meeting with Commission Staff on May 27, 2004. The AAI relies on the arguments and authorities raised in its *Rambus* brief as support for the proposition that IP incorporated in an industry technical standard can endow its owner with additional, unearned market power.

E. The Potential for Anticompetitive Harm

This section discusses the potential for anticompetitive harm from incumbent market power already summarized in Section II in terms of the relevant market definitions.

1. The C-P Technology Function Markets

a. Monopoly Price Levels

The usual concern with monopolies is that such firms will raise prices (or lower output) away from equilibrium “competitive” levels. In the C-P markets, the incumbents claim not to earn a profit on C-P technology. A monopolist may have market power, but it might also refrain from using it. Most firms do not share the method by which they set prices. The incumbents, however, argue that their fees are based on “cost recovery” or are “non-royalty-setting” license fees, suggesting that they are refraining from extracting monopoly rents from the firms in Segment II. All the evidence indicates that, with respect to the level of C-P technology licensing fees, refraining from charging monopoly prices is exactly what the incumbents are doing. Evidently, the level of license fees is not presently an issue among current adopters. The classic extraction of monopoly rents through supra-competitive prices, therefore, is not currently an anticompetitive harm resulting from the incumbents’ market power.

Nor are monopoly price levels likely to be an anticompetitive effect of market power in the future. For the C-P incumbents to raise prices to extract monopoly rents would be a risky strategy. It would draw public objections from adopters and from consumers, closer scrutiny of the level of licensing fees by regulators and lawmakers, and potentially the direct regulation of the licensing fees charged for C-P technologies.

The incumbents suggest that the silent unanimity of the adopters (or near-unanimity, in that one IT firm and one CE manufacturer have formally objected to Commission approval of the incumbents’ interim certifications) is evidence of more than the absence of monopoly price levels, also showing that C-P technology is being licensed on RAND terms. As already discussed, reasonable licensing fees are only one element of what constitutes RAND licensing terms. In the present case, the C-P licenses deviate from the RAND criteria on account of their non-price terms, and the potential for anticompetitive harm stems from these non-RAND provisions.

b. Monopoly Maintenance

As shown below, the non-RAND non-price provisions of the incumbent licenses have

direct anticompetitive effects on the C-P innovation markets for improvements and new functions, and indirect effects on the downstream retail market for compliant devices. But, to the extent that restraints on or disincentives for innovation tend to perpetuate the monopolistic structure of the C-P product function markets, direct competition in these markets is kept at bay. The maintenance of monopoly through anticompetitive means is an important class of conduct prohibited by Section 2 of the Sherman Act. If the non-RAND license terms act to restrain competitive entry through innovation disincentives, competition in the C-P product function markets suffers.

c. Joint IP Licensing

Similarly, concerted action by competitors that restrains competitive entry—either within the incumbent consortia or among them—can violate Section 1 of the Sherman Act. There is insufficient evidence available to determine whether concerted action by the founders of 4C and DTLA is likely to lead to competitive harm, largely because these consortia have not disclosed the precise nature of the IP (primarily the identity of the patents) being shared and licensed. Accordingly, whether cooperating competitors have joined to form the consortia only to share essential IP or also share complimentary IP, so that the consortia amounts to an agreement not to compete, cannot be determined.

Moreover, adopters are required to take a “blanket” license for the entire package of unidentified IP that the incumbent licensor considers necessary to practice the C-P technology. Since the “necessary claims” being licensed are not disclosed, adopters have no choice but to accept the blanket license. They have no way of knowing whether they need the entire package or only parts of it. Such blanket license requirements and the mixing of complimentary technologies are clearly anticompetitive under the principles enunciated in the DOJ’s Business Review Letters related to patent pooling. Unfortunately, the information needed to judge the severity of anticompetitive harm from the joint licensing arrangements is simply not available.

d. Concerted Non-Approval

The second source of potential anticompetitive harm in the existing product function markets arises from the license-compliance provisions that reserve to the incumbents approval rights over alternative C-P technologies. Entry by competitive C-P technologies can be discouraged by the prospect that the competitive technology will not be approved by the incumbents, despite its authorization by the FCC. To the extent that such approvals act as a barrier to entry, they cause anticompetitive harm. The record of experience in this industry is insufficient to assess the barriers to entry for

competitive C-P technologies, but the potential for such barriers is clearly enhanced by permitting the incumbents to revoke the license of any adopter that chooses to incorporate an authorized C-P technology that the licensor has not approved.

2. The C-P Improvement Innovation Markets

The greatest potential for anticompetitive harm lies in the foreclosure of competition in the C-P markets through non-RAND non-price licensing terms that stifle innovation, particularly the confiscatory non-assertion provisions that go beyond what is necessary to protect licensors from being blocked by the patent rights of others or being denied improvements to their own technology.

The *status quo ante* is characterized by the wide acceptance of the incumbent C-P technologies and the incumbents have licensed a great many Segment II firms. But, in contrast to the interpretation placed by the incumbents on this widespread acceptance of their technologies, these arrangements have no probative value one way or the other on the issue of whether the *status quo ante* is rightly characterized as a “market determined” outcome, whether existing licensing relationships are pro-competitive or deviate from the RAND criteria, or whether pro-competition regulations can effectively stimulate innovation and competition, or at least attenuate the potential for competitive harm from the existing arrangements.

The non-assertion provisions are overly broad in scope and fail to permit adopters from earning reasonable royalties on their own innovations. This contrasts with the narrowly drawn grantback provisions discussed above, which protect parties from being foreclosed from the market and at the same time stimulate innovation. The overly broad non-assertion provisions found in the incumbent licenses are not common in technology licenses (save in the C-P technology markets) and may even be regarded as aberrational.

Moreover, the incumbent licenses offer little by way of due process (*i.e.*, notice or approval rights) with respect to changes to the C-P technology Specifications. The combination of the broad non-assertion rights and the licensors’ ability to unilaterally institute changes to their technology is especially hazardous. Innovations developed by adopters can simply be added to the Specification and appropriated for free by the licensors and all other adopters under the non-assertion provision.

These contractual prohibitions on earning reasonable royalties from innovations to existing C-P technologies embodied in the current non-assertion provisions and the broad rights of the licensors to change their Specifications create a strong disincentive

for adopters to innovate. Adopters should instead be encouraged to develop innovations to existing technologies through the opportunity to earn a reasonable return on their investment. In this case, the anticompetitive harm flows directly from the non-RAND non-assertion provisions in the incumbents' licenses to a disincentive effect on innovation.

3. The New-Function C-P Innovation Market

Incentives to develop C-P technologies for new functions that do not yet exist can also be dampened by the prospect of having royalties confiscated or requiring incumbent approval before current adopters can employ new authorized technologies.

The free-rider problem arises in the new-function innovation market because an adopter may find that its new-function innovation has been unilaterally incorporated into an existing Specification. The broad non-assertion provision would again prohibit the innovating adopter from charging a reasonable royalty, even for C-P technology related to a new function, such as a new digital recording method or re-designed computer port.

4. The Retail Market for Compliant Devices

Consumers can benefit from choice and interoperability in the retail product market only to the extent that functionally comparable alternative content protection technologies in Market 1 are available as inputs for manufacturers, barriers to entry and interoperability are not permitted to be artificially imposed, and innovation is not stifled. Thus, the conditions in all the C-P markets indirectly affect the conditions in the retail market for flag-compliant devices.

However, as shown at the bottom of Figure 1, the retail market may be the direct target of firms with market power in the C-P markets. That is, incumbent C-P vendors may leverage their market power in the C-P markets into the broadly-defined retail market. This prospect arises on account of the vertical integration of the firms incumbent in the C-P technology markets, which creates an opportunity for them to wield the market power they possess in the upstream market to gain an advantage in the downstream market. Experience in the industry has not shown signs of such leveraging as of yet. Nonetheless, one possible mechanism for such leveraging is through the misuse of proprietary information that adopters are required to supply to the incumbents' license administrator.

Reports to licensors of licensee retail sales are not particularly uncommon in

technology licenses where royalties are based on sales volume. Such data, however, is competitively sensitive, and should be limited in scope to information reasonably required to administer the license. The incumbent licenses, however, tend to go somewhat farther in the scope of information they require to be disclosed, in some cases requiring disclosure of future product design plans or product sales forecasts. Such proprietary information about a competitor can be unfairly used to gain a competitive advantage. At the same time, there are no formal mechanisms—*e.g.*, “firewalls” or an independent administrator—provided for in the incumbents’ licenses to prevent competitively sensitive information from being misused by the licensors.

Moreover, tremendous potential exists for anticompetitive mischief when a firm’s retail competitor also controls an input essential to the manufacture of the firm’s products. Antitrust theories such as tying, essential facilities, or monopoly leveraging, all focus on the anticompetitive harm involved in the control of an important or essential input in an upstream market that is used to affect a separate, downstream market. Through licensing, coercive conduct, or other business strategies, the owners of the incumbent C-P technologies are in a position to affect the competitive conditions in the retail market because they are vertically integrated entities that control such an essential upstream input.

F. Efficiency Justifications for Current Licensing Terms

1. Proffered Justification for Broad Non-Assertion

The license fees charged by the incumbents are claimed not to generate profits. As was already mentioned, the incumbents generally do not even refer to these fees as “royalties.” The incumbents claim that they are set at a level sufficient only to “recover costs,” implying that they are somewhat less than the fair market value of the technology being licensed.

The incumbents claim that these fees remain at below-market levels because of the broad non-assertion provisions in the current licenses. Such an argument is, in essence, an efficiency defense to justify toleration of the overly-broad IP non-assertion provisions. The argument, however, makes no economic sense. Rather, it resembles a veiled threat by the incumbents that prices for C-P technology will rise if the broad non-assertion agreements are prohibited by regulation and instead replaced with more reasonable and conventional provisions.

One incumbent has warned that such regulations will require them to charge “reasonable royalties” instead of below-market prices. They should do so, and there is

no evidence that they are not doing so now. Although prices are not presently constrained by the operation of a competitive market, if they ever are then everyone (including the incumbents) will and should expect royalties for use of their technology instead of the claimed “cost reimbursement” currently being charged. Apparently, this is something the incumbents (and DTLA in particular) find “manifestly unfair,” specifically, to permit rival innovators to charge “reasonable royalties as the objectors [including the AAI] suggest, when the 5C companies do not.”¹⁸ In other words, innovators should *not* be given the opportunity to be compensated for their innovations nor prices determined by a competitive market mechanism.

There is no evidence to suggest that the fees charged now or in the future by the incumbent C-P technology licensors are linked in any legitimate way to the broad non-assertion provisions. There is simply no meaningful “efficiency” trade-off between the disincentive to innovate engendered by these provisions and the level of license fees demanded. The desire to control the pace or direction of innovation or to free-ride by contract on the present or future IP of adopters does not justify the anticompetitive IP non-assertion provisions nor constitute an economically sensible efficiency defense.

2. Proffered Justification for Approval Rights

Retaining the right to prevent its adopters from employing FCC-authorized C-P technologies that have not been approved by the incumbents has been justified on the grounds of ensuring that the integrity of the licensed C-P scheme, and thus redistribution control of protected content, remains intact.

In light of the compliance and robustness criteria that the Commission has already adopted in its *Broadcast Flag Report and Order* there is no scope for the incumbents to offer such a justification. Once the Commission has authorized a C-P technology, it is should be presumed to be sufficiently secure to handle protected content.

IV. Suggested Regulatory Remedies

While the argument can be made that the FCC’s entry as the broadcasting regulator into the *status quo ante* should disturb existing commercial arrangements as little as possible and intrude minimally into existing market mechanisms, there is very little in the C-P industry by way of “market mechanism” to intrude into. It is already clear

¹⁸*Reply of Digital Transmission Licensing Authority Supporting Certification of DTCP, In re: Digital Output Protection Technology And Recording Method Certifications*, MB Docket 04-64 (Apr. 16, 2004), at 42, note 62.

that licensee fees are not determined by a competitive market mechanism—that is very much a description of the regulatory goal rather than the *status quo ante*. In light of the acute potential for anticompetitive harm of simply approving the existing conditions outright that are outlined in this report, certain antitrust regulatory safeguards would be appropriate.

One way of fostering competition in a market dominated by a monopoly is to prohibit the incumbent from engaging in conduct that has known anticompetitive effects that tend to perpetuate or maintain the monopolies by creating barriers to entry or making it difficult or impossible to compete. Clauses in licenses and other agreements which do not create efficiencies for the C-P firms can impose burdens on Segment II firms by either curtailing contractually the rights of adopters to use the force of competition to their own benefit or by contractually de-motivating them to innovate in competing or complimentary technologies.

Perpetuation of monopoly power in the C-P industry can be regarded as analogous to the continuation of private control of a *de facto* technical design standard. Accordingly, certain pro-competitive limitations on the conduct of incumbent C-P firms are suggested by rules typically associated with the standard setting process. Such rules fall into four basic categories:

- Prohibiting license compliance criteria that inhibit or prevent any adopter from using any other FCC-approved C-P technology, alone or in combination with the licensed technology;
- Prohibiting non-traditional IP non-assertion covenants that empower licensors to free-ride on the innovations of adopters or others;
- Requiring adequate and non-discriminatory notice of proposed changes to the license terms or technical Specifications, due process procedures in their adoption, the affirmative assent by adopters to the changes being considered; and,
- Requiring adequate procedures or institutions to prevent the misuse of proprietary and competitively sensitive information reasonably necessary to be collected for license administration.

The competitive aim of such regulation is the elimination of the market power discrepancy between Segment I firms and Segment II-only firms. At present, these two classes of firms are differently situated, with Segment II-only firms enjoying

substantially less control over the Specification, its improvement, the level of license fees, and the terms of the licenses. To “disadvantage current participants,” as one incumbent has put it, is not the reason for the suggested competitive safeguards. The objective is to create conditions that promote competition, innovation, and fair play.

In the retail market, appropriate regulations would endeavor to promote consumer choice, device interoperability, and flexibility by ensuring that consumers:

- Are not “locked-in” to a class of products that employ a particular class or group of C-P technologies;
- Have access to a wide variety of hardware and content choices without limitations imposed by conditions in the C-P technology markets; and,
- Enjoy unfettered access to content, subject only to legitimate conditions imposed by the content owners.

V. Conclusion

In order to enable DTV broadcasting as a compliant transmission method for the distribution of protected content, the Commission must ensure a fair and openly competitive C-P market. The Commission rightly believes that DTV users can and should enjoy the advanced functionalities the incumbent C-P technologies make possible. It is therefore useful to consider that the entry of broadcasting will affect the existing C-P environment because the Commission will have put its imprimatur on a set of incumbent Specifications that rightly belong to the world of voluntary consensus standard-making, but for reasons of expedition arose out of a world of working groups, consortia, and joint ventures unconstrained by pre-established procedural rules.

The concern from a competition policy perspective is not the current or even future price level at which C-P technology is available, but the market power that is and could continue to be possessed by the incumbent C-P vendors. In addition to the power to increase prices, market power can also mean control of the pace and direction of innovation, it can affect competition in downstream markets, and, of course, it can be used by incumbents to maintain their monopolies and disadvantage rivals. Accordingly, the Commission should not simply appoint the current vendors to a perpetual position of market power, but should exercise its responsibility to reach beyond the mere approval of what is.

It is important to recognize that the incumbents were first-movers, and as such have

made risky investments that have benefitted consumers. But, it is just as important to recognize that neither the reward for first-mover-ship nor even the reward for invention itself (as the Constitution provides) were meant to be enjoyed in perpetuity.