

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

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

**Home Recording Rights Coalition  
Comments On Further Notice Of Proposed Rulemaking**

February 13, 2004

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APPENDIX A – DECLARATION OF SEAN WARGO

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The Home Recording Rights Coalition (“HRRC”), in its March 28, 2003 Comments,<sup>1</sup> endorsed the regulatory structure ultimately enacted by the Commission in its October 9 Report & Order and SFNPRM.<sup>2</sup> In the one area not addressed in the joint CE/Cable recommendations -- the treatment of HDTV program “downresolution” in the proposed “Encoding Rules” -- HRRC said that, “in the context of initial consumer receipt and viewing of MVPD programming, [downresolution] would be unsupportable, unnecessary, and unconscionable as impositions on the viewing public and discrimination against early DTV and HDTV adopters.”<sup>3</sup>

In the interim, the context for this issue, reserved by the Commission for further discussion, has been *aggravated* by the October 24, 2003 change to the

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<sup>1</sup> *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, CS Docket No. 97-80, *Compatibility Between Cable Systems and Consumer Electronics Equipment*, PP Docket No. 00-67, Comments of the Home Recording Rights Coalition In Response To Further Notice Of Proposed Rulemaking (Mar. 28, 2003) (“HRRC March 28, 2003 Comments”).

<sup>2</sup> *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, CS Docket No. 97-80, *Compatibility Between Cable Systems and Consumer Electronics Equipment*, PP Docket No. 00-67, Second Report and Order and Second Further Notice of Proposed Rulemaking (Rel. Oct. 9, 2003) (“October 9 Report & Order”).

<sup>3</sup> HRRC March 28, 2003 Comments at 1.

DFAST Technology License Agreement.<sup>4</sup> This licensing change slammed the door on owners of legacy displays. There will now be no opportunity for consumers owning high resolution displays with only Component Video HD inputs to procure a Navigation Device immune from “downres.” Therefore, the ability of these consumers to enjoy HDTV now lies squarely in the hands of the FCC: *If the FCC approves the use of “downres” triggers on non-broadcast programming, more than five million early adopters will become vulnerable to being deprived of HDTV viewing for all such programming.*

HRRC was formed in October, 1981, when the ability of consumers to buy recording devices for private, noncommercial use was put in jeopardy. At the time, even with “1984” still lying ahead, it would have been hard to conceive of a future in which consumers would have to fight for the right to use non-recording *television displays* in order to watch lawfully purchased content. But this is the prospect now before the Commission:

- While most HD-ready displays for sale today *do* have secure digital (DVI/HDMI and/or 1394) inputs, most of the HD displays *sold to date* do *not* have such digital interfaces, so must rely, for HD display, on the Component Video inputs whose programming would be downres’d.
- The displays that rely exclusively on Component Video inputs include many of the highest resolution and most expensive displays available to consumers; this includes many high resolution “flat panel” displays still on the market today.
- Imposition of “downres” would primarily harm HDTV early adopters, who trusted the FCC in believing that HDTV displays would be a worthwhile investment. Later adopters, who procure products that are less expensive but happen to have digital inputs, would not be affected.
- In the near future, most HDTV receivers will have digital inputs – leaving the early adopter group “holding the bag” if the FCC

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<sup>4</sup> DFAST Technology License Agreement (Oct. 24, 2003) at [www.cablelabs.com/udcp](http://www.cablelabs.com/udcp).

allows downresolution to be applied to the content sent to their receivers' inputs.

- Therefore, the Commission cannot necessarily rely on any “market” forces or reaction to forestall content providers from pulling the “downres” trigger. Those affected at some point will become a minority of potential HDTV viewers -- albeit an increasingly vocal and unhappy minority -- as HDTV service is promulgated more widely to *everyone else*.<sup>5</sup>
- The potential tragedy here is that this imposition on early adopters would be entirely unrelated to their own potential conduct. There is no rationale for downresolution springing from denial of ability to record – all “downres” does is to cut the bandwidth of the signal that is recorded. Similarly, HDTV downresolution keeps nothing from going to the Internet – in fact, by reducing the signal to one-quarter of its previously transmitted size, it efficiently *compresses the signal for redistribution*. The real rationale is to *affect consumer purchasing behavior of displays*. But this consideration has lost relevance --

-- The affected group of consumers has *already purchased* their displays, so cannot be further influenced.

-- The action already taken by the Commission in (1) requiring DTV tuners in all televisions, and (2) requiring all HD “Digital Cable Ready” televisions to have DVI / HDMI inputs, and all MSO navigation devices to have 1394 interfaces, effectively ensures that displays purchased in the future will have digital interfaces.<sup>6</sup>

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<sup>5</sup> These other consumers could, in fact, also be endangered were the Commission to grant the MPAA's reconsideration petition re “Selectable Output Control.” HRRC will address that possibility and issue in its opposition to that petition, and will assume for purposes of this SFNPRM that the Commission's newly effective regulations will remain in force.

<sup>6</sup> As several Commissioners themselves noted at the time of the Dual Tuner order, once a TV receiver has an ATSC tuner, it should be a relatively trivial expense to add Digital Cable Ready capability, which requires a DVI / HDMI input. *In the Matter of Review of the Commission's Rules and Policies Affecting the Conversion to Digital Television*, MM Docket No. 00-39, Second Report and Order and Second Memorandum and Order (Rel. Aug. 9, 2002) at Appendix C. Such a configuration similarly reduces the relative cost of adding a 1394 interface.

## **I. THE FCC SHOULD BAN THE IMPOSITION OF DOWNRESOLUTION ON CONSUMERS.**

In its initial Comments, HRRC posed the question, “To what extent may home-based consumer electronics and information technology products be constrained through the licensing of specifications under authority granted by the Congress to the FCC, and delegated to a private party?”<sup>7</sup> The “downres” issue provides a clear answer: the unbridled power to abuse groups of consumers should not be delegated to content providers. In this SFNPRM,<sup>8</sup> the Commission asks (¶ 82):

“We seek comment on whether the Commission should prohibit the activation by MVPDs of downresolution for non-broadcast MVPD programming content. If so, we seek comment on the potential impact of such a ban on the availability of high value digital content to consumers. In the alternative, if the Commission were to permit the use of down-resolution in this manner, we seek comment on the potential impact on consumers with DTV equipment that only has component analog outputs [*sic*].<sup>9</sup> In particular, we seek comment on the number of consumers that might be affected and on the number of sets to be produced in the future with only analog outputs [*sic*].<sup>10</sup> Finally, we seek comment on the potential impact of down-resolution upon consumers who own DTV equipment with both digital and analog outputs [*sic*].<sup>11</sup>

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<sup>7</sup> HRRC March 28, 2003 Comments at 1.

<sup>8</sup> October 9 Report & Order ¶ 82.

<sup>9</sup> Clearly, the Commission here meant to say component analog *inputs*. The damaging effect of downresolution is to prevent Component Video output devices from emitting an HD-quality signal, so as to deny an HDTV signal to any downstream device – even if only a display – that must rely on its own Component Video *input* to receive HDTV (as is the case with most HDTV displays in consumers’ homes today). Hence, though downresolution is *applied* at the output stage, its intended effect is on the *input* of any downstream device, including an HDTV display.

<sup>10</sup> *Id.*

<sup>11</sup> *Id.*

**A. At Least Five Million Viewers Could Lose Access To HDTV Until The Content Reaches Free Terrestrial Broadcast – Years After It Is Seen In HDTV By Their Neighbors Who Purchase Identical Programming.**

On September 3, 2003, HRRC filed in this Docket an *ex parte* letter, accompanied by a declaration of Sean Wargo, CEA's Director of Industry Analysis,<sup>12</sup> that established for the record the following facts, as per CEA's latest market research at that time:

- “The number of consumer electronics DTV displays already owned by consumers or on retail shelves that rely exclusively on component video analog inputs for the receipt of HDTV from cable, satellite, or broadcast tuners is approximately 5.4 million. Of these, 4.5 million are classified as able to display full HDTV; most of the others can display content at greater than standard “DTV” resolution, and all can display at greater than “NTSC” resolution.”
- “[R]oughly one-third of all DTV receivers still rely exclusively on component video analog inputs to receive any content of greater than NTSC resolution from a cable, satellite, or broadcast set-top box or other product. While this percentage is declining (and should decline dramatically as a result of FCC action in these dockets), the annual sales figures are increasing sharply. Hence, it seems fair to say that several million additional consumers -- the DTV and HDTV pioneers -- will be in the position of relying exclusively on these inputs in order to enjoy the HDTV content for which they have paid in product and program acquisition costs.”

Updated by CEA's most current market research,<sup>13</sup> the facts are as follows:

- The number of DTV displays of HDTV or EDTV resolution (both better than a “downres'd” signal) sold to consumers or on retail shelves to date that rely *exclusively* on Component Video inputs is **6 million**. Approximately 360,000 of these are digital micro-projection (*e.g.*, “DLP,” “LCD,” “LCOS”) or flat panel (Plasma or LCD) displays.

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<sup>12</sup> *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, CS Docket No. 97-80, *Compatibility Between Cable Systems and Consumer Electronics Equipment*, PP Docket No. 00-67, HRRC *Ex Parte* Communication (Sept. 3, 2003) (“HRRC September 3, 2003”).

<sup>13</sup> See Appendix A for a Declaration of Sean Wargo with updated industry statistics.

- Today, digital micro-projection and flat panel displays together account for roughly one-third of DTV sales. Of these, approximately 75% have secure digital inputs as well as Component Video inputs.

**B. The FCC Should Amend Its Regulations As Proposed By The HRRC In Its September 3, 2003 Filing.**

In its *ex parte* filing of September 3, 2003, the HRRC presented for the record the information recited above, and provided draft regulation language that would exclude the use of “downres” triggers.<sup>14</sup> In light of (1) the further information presented about the effects on consumers, (2) the fact that future consumer HD-ready displays will have digital interfaces *whether or not* downresolution is implemented, and (3) the fact that owners of legacy displays, including flat panel and digital micro-projection displays, cannot buy or lease *any* navigation device product that can provide a non-downres’d MVPD signal (other than from free terrestrial broadcast), the FCC should implement these changes to its regulations in response to this SFNPRM.

**C. Use of Downresolution Triggers Implies The Unavailability Of A True Content Protection Solution.**

The Commission should also take cognizance of the fact that, since its October 9 Report & Order, the Copy Protection Technical Working Group’s (“CPTWG”) *Analog Reconversion Discussion Group (“ARDG”)* has submitted its final report.<sup>15</sup> The year-long work on copy protection signaling over analog interfaces was contributed to by representatives of several industry and interest groups. This work undermines a core precept of downresolution – *that there is no copy protection alternative* to punishing innocent consumers for their early investment to HDTV.

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<sup>14</sup> HRRC September 3, 2003, Exh. B.

<sup>15</sup> The report of the Analog Reconversion Discussion Group of the CPTWG will be available at [www.cptwg.org](http://www.cptwg.org).

## **II. HRRC OPPOSES THE “RETIREMENT” OR “REVOCATION” OF LAWFUL CONNECTORS, INTERFACES, OR DEVICES.**

The Commission raises the prospect -- which ought to be chilling for everyone involved in the DTV transition -- of “retirement” or “revocation” of secure technologies, connectors, or devices, if found to have been “compromised.”<sup>16</sup> History shows that, apart from the sort of very limited “revocation” now available in license agreements, such a course would be disastrous for all concerned.

### **A. The “Compromise” Of “Secure” Products Is Both Anticipated And Inevitable.**

HRRC has attended the CPTWG since its formation in 1996; HRRC members have participated in various licensing consortia since the digital age began. Rarely is security or copy protection demanded or presented as impregnable. Rather, the usual standard that is requested by content providers and distributors, and met by manufacturers, is described variously as “curb high,” “keeping honest people honest,” or providing a “tripwire” for the use of legal remedies by making necessary the infringement of intellectual property, or a violation of law, in order to defeat a security measure. It would be a severe breach of faith with the technologists and manufacturers who agree to implement these security measures, and with the people who buy the products that incorporate them, for the interfaces or products in question to be abandoned *on the grounds that the expected compromise has in fact occurred.*

Providing consumers with “secure” technologies satisfies several policy objectives – it promotes the digital transition; it builds consumer confidence; and it spurs competition and competitive entry. For example, in five decades of cable television, there was no way found to make navigation devices competitively available *until* the Commission identified a common security interface in 1998

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<sup>16</sup> October 9 Report & Order ¶ 60.

(the “POD,” or “CableCARD”).<sup>17</sup> Moreover, as first proposed by the Cable industry, the POD extended network security against diversion of service, but it did *not* address copy protection; rescrambling the POD output was an afterthought requested by content originators. The rationale for this rescrambling was that use of the DFAST algorithm would provide a “tripwire” for pursuing any “circumventer” as an intellectual property violator – *not* that the interface would ever or always be impregnable. This is why the prevalent consumer license agreements, from CSS to DFAST, provide for revocation *only* of device-specific cloned, lost or stolen certificates, and do *not* provide for the revocation of devices or technologies on a unit, model, or product basis.

**B. Any FCC Regulations Regarding Technology Reliance Should Be Forward Looking And Should Not Deprive Consumers Of The Benefit Of Their Bargain.**

In the networked digital era, consumer purchase of products with “secure” digital interfaces represents a covenant, between the purchaser and those involved in approving the use of the interface, that it will be supported for its intended purpose. As we note above, the intended purpose of the security is to provide some measure of resistance to certain conduct, and to aid in legal sanction against other conduct.

By approving encoding rules the Commission (and, in applicable circumstances, licensors) have embraced a bargain for the use of these measures: in return for technological adherence, limits are placed on the impositions to be put on consumers. When an interface or an enabling technology is “retired,” “revoked,” or turned off via “Selectable Output Control,” the covenant, which extends all the way through to the consumer, is broken. The Commission would become a party to the breaking of this trust agreement.

Accordingly, HRRC believes that to the extent the FCC embraces any scheme that contemplates “revocation” or “retirement” of outputs and

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<sup>17</sup> *Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Report and Order*, 13 FCC Rcd 14775 (1998).

technologies, it must be implemented on a going-forward basis only, *and* it should not disable the reasonably intended uses of products already in the field. There should be a heavy burden to demonstrate that these conditions can be complied with.

**III. ANY “ARBITER” OF OUTPUTS OR TECHNOLOGIES UNDER SECTION 629 SHOULD OPERATE UNDER THE FCC’S SUPERVISION.**

HRRC endorsed the Phase I regulations as ultimately issued by the Commission in its implementation of Section 629,<sup>18</sup> and maintains this stance. For “Phase I,” this involves (a) a license agreement with certain “safe harbors,” (b) agreed Compliance Rules, and (c) a system for expeditious appeals to the FCC. In this SFNPRM, however, the Commission has posed some broader issues.

**A. The Unilateral Change To The DFAST Technology License Agreement By CableLabs Was An Abuse Of CableLabs’ Power.**

The DFAST Technology License Agreement offered to licensees for signature as of October 24, 2003,<sup>19</sup> was *not* the version of DFAST that was published for comment by the FCC.<sup>20</sup> As we note above, it contained a unilateral change, not required by FCC regulation, defining a “downres” trigger and forcing licensed devices to respond to it immediately.<sup>21</sup> This change, made *before* the license was offered for signature, was immune from the procedural safeguards in the license referenced in the framework that was endorsed by the HRRC. As to this change, or to the extent that CableLabs may seek to impose other requirements beyond the framework accepted by the Commission in its October 9

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<sup>18</sup> 47 U.S.C. § 549, *Cable Television Consumer Protection and Competition Act of 1992*, Pub. L. No. 102-385, 102 Stat. 1460 (1992).

<sup>19</sup> DFAST Technology License Agreement (Oct. 24, 2003) at [www.cablelabs.com/udcp](http://www.cablelabs.com/udcp).

<sup>20</sup> *Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, CS Docket No. 97-80, *Compatibility Between Cable Systems and Consumer Electronics Equipment*, PP Docket No. 00-67, Further Notice of Proposed Rulemaking (Rel. Jan. 10, 2003).

<sup>21</sup> Manufacturers, faced with the licensor’s insistence on response to a trigger, in fact proposed its definition, in the expectation that a grace period would be provided before its use would be required. This would have allowed manufacturers to market non-downres navigation devices, available to consumers with legacy displays.

Report & Order, CableLabs exerts a “sole arbiter” power beyond that which the FCC approved. The FCC should scrutinize any such arrogations closely, and should delay, reverse, or decline to enforce them as may be appropriate.

CableLabs, at present, stands in a unique position as a private laboratory, owned by the only incumbent providers of navigation devices, exercising power over potential entrants as the *only* licensor and (for now) the *only* test facility. HRRC trusts that competition in the testing world will improve, but for the foreseeable future CableLabs will remain the licensor of its owners’ competitors. As such, its use and abuse of discretion needs to be strictly scrutinized by the Commission.

**B. The Commission Should Not Add To The Power Exercised By Content Providers Or Distributors Over Competitive Entry.**

The Commission should take steps to avoid unilateral impositions on entrants to the navigation device market by content providers or content distributors, or their representatives. The fact that a restriction on output or recording is *not prohibited* by the Encoding Rules does not mean that licensors have been delegated the authority, in this proceeding that is supposed to be about enabling competition, to *impose such restrictions unilaterally*. Rather, as the Commission has recognized in formulating this SFNPRM, the question of technical restraint is one of public policy. The delegation of specific responsibilities to deregulate a device monopoly should not, and does not, carry with it the power to dictate the designs and capabilities of devices, unless harm to the network or theft of services are involved.

As the Commission recognized in its October 9 Report & Order, it has an obligation to balance public policy considerations in its administration of Section 629.<sup>22</sup> This obligation includes but extends beyond the administration of Encoding Rules; it extends also to assuring that the initial approval of

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<sup>22</sup> October 9 Report & Order ¶¶ 45-47.

technologies and interfaces is one that achieves a competitive result that is fair to consumers. So, beyond those instances already reviewed and approved by the Commission, neither CableLabs nor any content provider should be in the position of “sole arbiter” of technologies or interfaces.

**C. Oversight Of Section 629 Occurs In Unique Circumstances.**

The Commission asks further whether the “arbiter” outcome should be similar or the same as for other proceedings, such as that in Docket 02-230 (“Broadcast Flag”). HRRC believes that, due to the circumstances reviewed above, this proceeding is unique. There is a competitive impetus, specifically ordered by the Congress, behind it.<sup>23</sup>

The “Broadcast Flag” proceeding arises from an initiative to afford to broadcasters, whose programming is not subject to conditional access protection and is not copy-protected, the same ability to address Internet redistribution as is enjoyed by program distributors whose programming *is* subject to conditional access and copy protection.<sup>24</sup> By contrast, the “Plug & Play” proceeding arose from a specific initiative by the Congress to inject manufacturing and retail competition into the only consumer device market still monopolized by the service providers. Thus, while promotion of competition should inform everything the Commission does, it is at the core of the Plug & Play proceeding.

More specifically, decisions over technology, interfaces, and product configuration should be made in this proceeding with a view to promoting competition and assuring a “level playing field” for entrant devices *vis a vis* the products distributed by service providers. To the extent relevant, this should also be a consideration in the Broadcast Flag proceeding, but it is not the main impetus behind the FCC’s involvement in the issue.

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<sup>23</sup> 47 U.S.C. § 549(b); S. Conf. Rep. No. 104-230, at 181 (1996); H.R. Rep. No. 104-204, at 112-13 (1995). *See* Statement of Senator Leahy, 138 Cong. Rec. § 561 (Jan. 29, 1992).

<sup>24</sup> Final Report of the Co-Chairs of the Broadcast Protection Discussion Subgroup to the Copy Protection Technical Working Group (June 3, 2002) at [www.cptwg.org](http://www.cptwg.org).

#### **IV. HRRC SUPPORTS MARKETPLACE DETERMINATIONS OF THE OTHER ISSUES POSED BY THE COMMISSION.**

Resolution of the other issues raised by the Commission is not central to HRRC's mission of protecting consumers' freedom to acquire and use innovative products privately and noncommercially. HRRC recommends that they be resolved in accordance with Congress's objective in enacting Section 629,<sup>25</sup> which was to promote competitive entry, and the innovation it always spawns.

##### **A. It Should Not Be Necessary To Extend Plug & Play Conformance Regulations To 550 MHz Systems.**

While HRRC has advocated use of the Commission's oversight powers to perform the deregulatory mission Congress gave it, we do not see a present need to reach past the framework recommended on December 19, 2002,<sup>26</sup> to impose the same support requirements on "550 MHz" systems as apply to "750 MHz" systems. "Level playing field" issues still abound, but HRRC is willing to take the cable industry at its word that it will have adequate incentives to move 550 MHz systems to 750 MHz, and in any event to accommodate Plug & Play devices on systems. At present the Commission has more pressing competitive issues to attend to. However, it is vital to competitive entry that MSO systems do support these devices; this should be a subject of strict oversight by the Commission.

##### **B. Additional Labeling Requirements Could Get In The Way Of Communications To Consumers.**

HRRC believes that additional labeling, which likely would focus on what Plug & Play products can *not* do, is likely to be confusing to consumers. Both manufacturers and cable operators will have incentives to inform consumers of what these products can, and cannot, do. The "DCR" logo will be a common

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<sup>25</sup> 47 U.S.C. § 549(b); S. Conf. Rep. No. 104-230, at 181 (1996); H.R. Rep. No. 104-204, at 112-13 (1995). *See, e.g.*, Statement of Senator Leahy, 138 Cong. Rec. § 561 (Jan. 29, 1992).

<sup>26</sup> *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices*, CS Docket No. 97-80, *Compatibility Between*

reference point and, as these products become widespread in the marketplace, will be the subject of news articles and information provided to consumers by manufacturers, cable operators, and retailers. The Commission should focus its energies on maintaining the functionality of what these products, and what products previously sold to consumers, *were* designed to do, rather than formulating official warnings – unlike any experienced by consumers to date – about what these products were *not* designed to do.

Moreover, these products, if HDTV capable, are mandated to have both ATSC tuners and DVI inputs, and MSO set-tops will have 1394 interfaces. So consumers will have the option of adding a navigation device later. Most of the marginal cost increase over a “dumb monitor” display is accounted for by the mandated ATSC tuner. The additional expense of the CableCARD interface is nominal compared to the price of a DTV television receiver. Hence, considering the value received, there is little of which the consumer needs to be “warned” before making a purchase decision.

**V. CONCLUSION – THE COMMISSION SHOULD MAINTAIN  
CONSUMER CONFIDENCE IN THE DTV TRANSITION.**

While initially established to protect consumer's reasonable home *recording* expectations, HRRC finds itself speaking urgently to protect consumers' rights to obtain the intended use of television receivers and other products whose legality is unquestioned, and whose purchase was heavily promoted and encouraged by the Commission itself. The Commission continues to encourage consumers to purchase these display products, and has issued regulations that will encourage consumers to purchase products with "secure" interfaces. In exercising its oversight in this and other proceedings, the Commission must not abandon or disappoint consumers who rely on its initiatives.

Respectfully submitted,

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## Appendix A

I, Sean Wargo, do hereby declare as follows:

1. I am Director of Industry Analysis for the Consumer Electronics Association (CEA). CEA collects and aggregates market research information on a regular basis from a variety of sources. Its estimates are widely published, cited, and relied upon by several industries with an interest in home electronics.
2. According to current CEA market research, approximately 8.8 million consumer electronics Digital Television (DTV) displays (integrated sets and monitors) have been delivered to retailers for consumer acquisition as of January 1, 2004. Virtually all of these products contain component video analog interfaces for acquiring high resolution signals. Of these, approximately 68%, or 6.0 million sets, have *only* component video analog interfaces. Therefore, roughly 6.0 million consumers -- the first 6.0 million to buy DTV receivers -- have or shortly will have devices that must rely upon these component video analog interfaces as their only means to display HDTV (or standard DTV) content at a resolution greater than that of standard NTSC broadcasts.
3. Of the 8.8 million DTV displays marketed to date, approximately 88%, or 7.7 million, are classified as capable of "HDTV" resolution. Of these, slightly more than 60% have only component video analog interfaces for acquiring DTV and HDTV signals. Therefore, roughly 5.4 million consumers -- the first 5.4 million to acquire HDTV-capable displays -- must rely on these component video analog interfaces to acquire *any* HD content from a cable, satellite, or broadcast set-top box. Most of the other 12% are "EDTV" receivers, classified as capable of displaying better than standard DTV image resolution from an HDTV signal.
4. At present, roughly one-quarter of the DTV sets now being marketed still rely exclusively on component video analog interfaces to receive HD content from cable, satellite, and broadcast "set-top boxes." While this number will continue to decline, the annual sales rate of DTV sets -- projected at 5.7 million for 2004 -- will continue to increase. Therefore, it seems likely that for the near future several million additional consumers will be relying on component video analog inputs to acquire HDTV programming and to display it at resolution better than NTSC.
5. Today, digital micro-projection and flat panel displays together account for roughly one-third of DTV sales. Of these, approximately 75% have secure digital inputs as well as Component Video inputs.

Respectfully submitted,

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February 13, 2004