

Introduction

*"The most dangerous untruths are truths moderately distorted."
– Georg Christoph Lichtenberg, scientist and writer*

Speculation about component video's future has ballooned into the custom integration industry's latest big story, and a significant amount of misinformation has been making the rounds. At Audio Authority, we have been following the content creation industry's attempts to restrict analog video for years, and the recently publicized developments come as no surprise.

This document will marshal the resources we have gathered on the future of component video, distilling that information into a helpful guide for our customers, partners, dealers, and others in the electronics industry who seek "just the facts" about component video's future prospects.

Important Note: The laws and agreements described in this document may not apply in all localities, so unless otherwise specified, this information should be considered as applicable only to the USA market.

Is Component Video Going Away?

The straightforward answer is **no**. Of course, simple answers are often incomplete, and this case is no exception. Some content sources will be experiencing some changes in the way they are required to control component video output, while others are under no threat from pending restrictions.

So, Are My Favorite Sources Affected?

A complex web of electronics industry license agreements and government regulations control the availability of component video from consumer sources. This section describes how each common consumer source would be affected (if at all) by content restrictions.

Blu-ray Disc

Manufacturers that sell Blu-ray players are required to sign the Advanced Access Content System license. AACS is one of two layers of copy protection on Blu-ray Discs (BD+ is the other).

There are two threats to component video defined in the AACS license agreement—the Analog Sunset, and disc based flags, such as the Image Constraint Token (ICT), and the Digital Only Token (DOT).

First, the **Analog Sunset**:

2.2.2.1 Analog Sunset – 2010. With the exception of Existing Models, any Licensed Player manufactured after December 31, 2010 shall limit analog video outputs for Decrypted AACS Content to SD Interlace Modes only. Existing Models may be manufactured and sold by Adopter up until December 31, 2011...

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2.2.2.2 Analog Sunset – 2013. No Licensed Player that passes Decrypted AACS Content to analog video outputs may be manufactured or sold by Adopter after December 31, 2013.

Source: The AACS Final Adopter Agreement, available at www.aacsla.com.

This means that existing models of Blu-ray players with HD-capable component video outputs will continue to be available through December 31, 2011. Beginning in 2012, no new Blu-ray players with active HD component video

outputs may be sold. Until the end of 2013, new models of Blu-ray players will output standard definition, interlaced video (probably 480i, the native resolution of DVDs) from their component video jacks. In 2014 and beyond, no analog video outputs of any type will be allowed on Blu-ray players.

Despite fears of crippling firmware updates and other theories circulating the electronics community, existing Blu-ray players **will not be affected** by the “Analog Sunset” provisions of the AACS agreement. However, the Image Constraint Token can affect older, “pre-ban” Blu-ray players with active HD component video outputs.

The **Image Constraint Token (ICT)** is one of the two digital flags defined in the AACS agreement:

The Image Constraint Token has been available to content creators for some time, but as of the time of this writing, it has never been used on a mass-released Blu-ray Disc. The ICT is a *content-based* token, meaning each disc is coded with the ICT in the “off” or “on” position. Only the software content bearing the ICT will be affected—it has no effect on the Blu-ray player after it is removed from the disc drive. Use of the ICT is heavily regulated within the AACS license agreement:

Sec. 3, 1.3.2 Content Participants/Providers shall not, prior to December 31, 2010, direct Licensed Content Producers to embed the Image Constraint Token in Licensed Content Products offered for sale or other distribution in a country in which there was a government or quasi-government regulation or equivalent prohibiting the use of an Image Constraint Token, or equivalent, for scrambled or encrypted content as of November 30, 2005.

Source: The AACS Final Adopter Agreement, available at www.aacsla.com.

Under the terms of the AACS license, the ICT must not be put into use until 2011. Even then, content providers will not be *required* to use the ICT, they will simply have the *option* to use it.

Sec. 3, 1.4 If Content Participant/Provider has directed that the Image Constraint Token and/or Digital Only Token be set with respect to a particular LCP (Licensed Content Product) Unit, then the fact that such Image Constraint Token and/or Digital Only Token (as applicable) is set shall be disclosed by the Content Participant/Provider to the consumer either (i) on such LCP Unit’s product packaging; or (ii) only in the case of a consumer product, by other reasonable means that allows the consumer to be aware at the point of initial purchase that the Image Constraint Token and/or Digital Only Token (as applicable) is set with respect to such LCP Unit.

Source: The AACS Final Adopter Agreement, available at www.aacsla.com.

All discs that have an active ICT or DOT flag must bear a warning that will explicitly inform the purchaser. The consumer will know if the disc includes an ICT or DOT flag prior to making the purchase.

The ICT does have the potential to affect Blu-ray players manufactured before the Analog Sunset cutoff. A disc with an active ICT flag, played in a pre-ban Blu-ray player, will abide by the demands of the ICT and will output lower resolution, standard definition video from the component jacks.

No disc purchased before 2011 will be affected by these restrictions, and only discs bearing an ICT warning will be affected after its use becomes optional.

The **Digital Only Token (DOT)** is heavily restricted to the point of total irrelevance to the consumer:

1.2.1. Content Participant/Provider may assert the Digital Only Token only with respect to (a) Non-Consumer Products and/or (b) LCP Units Released in a given country within the first six (6) weeks after the first Theatrical Release of substantially similar Digital Entertainment Content in such country, provided that in the event of the circumstances set forth in this part (b), within six (6) months after such first Theatrical Release, Content Participant/Provider shall Release in such country LCP Units containing a version of such Licensed Content Product that does not assert the Digital Only Token.

Source: The AACS Final Adopter Agreement, available at www.aacsla.com.

The DOT may only be used for non-consumer content, or for licensed content (like movies) released on Blu-ray Disc within 6 weeks of the theatrical release, with the caveat that non-DOT versions of the content must be released within six

months. Since no such content distribution model with such accelerated timelines is in use at this time, the Digital Only Token should not be considered a threat, and could be easily avoided by waiting six months to buy a non-DOT version of the same content.

Cable, Satellite, and Over-the-Air Set Top Boxes

Unlike the industry-created AACS restrictions upon Blu-ray players, the component video outputs on cable and satellite boxes are controlled by the Federal Communications Commission (FCC). The same is true of tuners intended to decode the ATSC signals broadcast over the air by local television stations.

76.1903 - Interfaces.

A covered entity shall not attach or embed data or information with commercial audiovisual content, or otherwise apply to, associate with, or allow such data to persist in or remain associated with such content, so as to prevent its output through any analog or digital output authorized or permitted under license, law or regulation governing such covered product.

Source: Title 47, CFR Sec. 76.1903

This portion of Federal law not only disallows content providers from using flags or other electronic indicators to turn off component video outputs, but also charges cable and satellite providers with the responsibility of *preventing* such commands from being contained within their content delivery signals. There is one exception, however.

On May 7, 2010, the FCC granted the MPAA a waiver allowing very limited use of Selectable Output Control (SOC), which can disable all analog video outputs on certain content. This waiver limits the use of SOC, allowing it only for first-run movies, meaning films released for home viewing while the movie is still playing in theaters.

In this order, we act on a request for a waiver of Section 76.1903 of the Commission’s rules to allow multichannel video programming distributors (“MVPDs”) to disable certain audiovisual outputs on set-top boxes to assure that copy protection is active for certain high-value content, specifically early-release films. We deny the waiver request as filed, but, in order to encourage Motion Picture Association of America (“MPAA”) member companies, independent filmmakers, and their MVPD partners to offer their films for home viewing during early release windows, we grant a limited waiver of the prohibition on disabling audio-visual outputs.

Source: FCC Memorandum Opinion and Order, regarding MB Docket No. 08-82, page 1

Since this is a new feature for set top boxes, the FCC argues, no existing functionality is eliminated, there are just new controls put in place “allowing” Hollywood to offer this “service” to their customers.

The FCC didn’t grant the waiver as initially requested, but modified the terms of MPAA’s request and implemented a compromise position.

MPAA’s proposal to have the waiver for any given film extend until release on DVD is untenable because it could permanently prevent legacy devices from accessing movies released after the grant of this waiver if the film is never released on DVD. It is not our intent to grant such an open-ended waiver as it could mean that consumers with legacy devices would never have access to, or face extended delays in accessing, these movies on VoD. Accordingly we will terminate the waiver for a particular film 90 days after the first activation of SOC, or immediately upon the retail release of the film on any prerecorded media (including Blu-Ray), whichever is sooner.

Source: FCC Memorandum Opinion and Order, regarding MB Docket No. 08-82, page 7

Fortunately, because of how the waiver is worded, only first-run movies are affected by this SOC activation provision, and those movies are only limited for the first 90 days, or until the release of the film on prerecorded media.

Normal live TV broadcasts and existing types of video on demand services are not affected by this waiver. Consumers will be able to continue to use their cable and satellite services through component video as they are accustomed. Only this theoretical new “feature” will have SOC restrictions in place.

Media Streaming Devices (VuDu, AppleTV, and others)

Media Streaming Devices, which include set-top boxes from companies such as VuDu and Apple, are not covered by the AACS license, meaning the Analog Sunset provisions and Image Constraint Token described in the adopter agreement do not affect these devices.

It's possible that SOC limitations like those imposed on cable and satellite services will affect these devices, but with similar limitations that minimize the SOC's impact.

Video Game Consoles

Game consoles are not affected by the AACS restrictions. The PlayStation 3 must abide by the terms of the AACS license when playing back Blu-ray Disc content, but its video streaming, web-enabled, and video game functions are not affected by any restrictions on component video output.

Media Centers and Computers

Though analog outputs, such as VGA and Component video, are becoming less common on computers, there is no license agreement or law that would require the impending restriction or shut-off of their analog outputs. Computers that play back Blu-ray Disc content must comply with the AACS license agreement's provisions when playing Blu-ray content, but are otherwise unrestricted.

So What Does It All Mean?

High definition component video will remain alive and available far into the foreseeable future. Installers and designers must plan for the restrictions on the Blu-ray Disc format by providing education to consumers about the upcoming changes, or by providing alternative means of receiving high definition content.

Further information on the status of Hollywood's petition to the FCC is freely available on the internet:
(Link: <http://fjallfoss.fcc.gov/ecfs/proceeding/view?name=08-82>)

Potential for Restrictions on Consumer Component Video Sources

Source	Probability	Notes
Cable, Satellite, and OTA Set Top Boxes	Very Low	Government regulations require analog component video outputs remain active on virtually all content. FCC holds jurisdiction. Waivers have been granted for limited restrictions on first-run movies, none on other content.
Blu-ray Disc Players	Moderate/High	No more HD component video on new models after 2011, no more analog video at all after 2013. Current players and discs will continue to provide HD component output after analog sunset takes effect.
Media Streaming Devices	Very Low	Waivers have been granted for limited restrictions on first-run movies. No other restrictions on component video are currently in place.
Video Game Consoles	Very Low	Waivers have been granted for limited restrictions on first-run movies. No other restrictions on component video are currently in place.
Media Center PCs, Other Computers	Very Low	Waivers have been granted for limited restrictions on first-run movies. No other restrictions on component video are currently in place.

References

"AACCS Final Adopter Agreement". Available for Download: <http://www.aacsla.com>.

Code of Federal Regulations: *Title 47, Sec. 76.1903*

FCC ruling, May 11, 2010, regarding Selectable Output Control. Available for Download: http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-10-795A1.pdf