



Frequently Asked Questions and Answers

How does Verance's watermark technology work?

Verance's audio watermarking technology embeds inaudible yet persistently identifiable digital codes into an audio waveform. Similarly to visible watermarks used for currency and stationery, audio watermarks can verify details of the audio and audio-visual content in which they are embedded but do not interfere with the intended uses or the quality of the content. However, embedded Verance watermarks are resilient to copying and modification of the audio and audiovisual content, traveling with the content throughout its useful life.

Verance watermarks are embedded into sound recordings (or the soundtrack of audiovisual works) prior to distribution and can be detected by consumer or professional products that incorporate a Verance watermark detector.

Verance watermarking provides content protection by allowing devices that incorporate watermark detectors to identify when content is being used in an unauthorized manner and responding appropriately, for example by refusing to play, record, or distribute it. For music and video that is distributed in a format that incorporates encryption-based Digital Rights Management technology, such as Blu-ray, or DVDAudio, the watermark is used to indicate that the presence of encryption is required for use of the content to be permitted. If the content is copied with its encryption removed, for example by recording through the "analog hole" or through circumvention of the DRM system, the presence of the watermark indicates that the duplication was not unauthorized. For theatrical release motion pictures, the watermark is used to indicate that any use of the film in consumer devices is unauthorized.

When was Verance founded and by whom?

Verance was founded in August 1999 through a merger of ARIS Technologies, Inc. (Cambridge, MA) and Solana Technology Development Corporation (San Diego), both of which had been developing audio watermark technologies since 1995.

How many patents have been awarded to Verance?

As of June 2007, Verance has 35 U.S. and foreign patents with many additional patents pending worldwide.

Who are Verance's customers?

Verance's customers are owners of copy protected digital media content and the manufacturers of integrated products that enable the viewing of that content. Customers include movie studios, post-production facilities, music content developers and record labels, and consumer electronic manufacturers.

Some of the company's customers include Universal Studios, Warner Bros. Entertainment, Sony Pictures Entertainment, Warner Music Group, Microsoft, Panasonic, Sony Electronics, and Toshiba.



What are the benefits of the Verance watermarking technology for the content owners?

Verance watermarking provides a powerful tool for addressing major avenues of casual and professional piracy of premium entertainment content. The technology provides cross-platform content protection by enabling the restriction of unauthorized use of watermarked content in devices that incorporate Verance watermark detection, such as optical media players and mobile entertainment devices. The technology provides an effective solution to immediate problems, such as in-theater camcording, and the ability to address other emerging concerns throughout the life-cycle of content.

How is this technology different from other DRM systems?

Existing DRM systems use encryption to control access to content between the distributor and the playback device, but don't provide any protection if the content is played back and re-recorded. Verance's watermarks remain permanently present and detectable within embedded content even after they are played back and re-recorded or converted between various digital formats, providing a powerful complement to encryption-based DRM protection.

What are the benefits to consumer product and component manufacturers?

Content protection technologies exist to facilitate the growth of a strong marketplace around new digital media distribution platforms. Verance watermark detection provides a powerful complement to encryption-based DRM systems by addressing important avenues of professional and consumer piracy that would otherwise be left unaddressed. By integrating Verance watermark detection technology into their products, consumer product and component manufacturers can ensure their products' compliance with all platform and format requirements as well as their competitive position in the market.

What types of consumer devices incorporate Verance watermark detection?

Verance watermark detection is currently required in all manufactured DVD-Audio, SD-Audio and SDMI-compliant players and recorders. Verance watermark technology and its Cinavia solution have been selected by AACS for inclusion in Blu-ray players manufactured under the final AACS license, which is expected to be released in the coming months.

What information is contained in the Verance watermark?

Verance watermarks contain an identifier of the intended authorized use of the content (theatrical only, protected home video/music format only, etc.) and may also contain a code which uniquely identifies the title or track (such as ISAN or ISRC).

Is detection of a Verance watermark required for content to be played or recorded?

No – the lack of a Verance watermark is never used as an indication of unauthorized use of content. It is the presence of a mark indicating that the content is being used in an unauthorized manner that may result in the use being limited or disallowed.

What kinds of content can be embedded with Verance watermarks?

Verance watermarks can be used in any music or video work. However, the content protection functions are currently limited to content distributed in certain formats. Contact Verance for further information on the distribution formats for which content protection is currently supported.



When will watermark detectors for Blu-ray discs be made available to manufacturers?

Verance watermark detection technology is currently available for manufacturers of consumer product and components for DVD-Audio, SD-Audio, SDMI portable device, Blu-ray players and recorders.

Is the Verance watermark technology available for use in my content protection system or media distribution format?

Yes, the Verance watermark technology is inherently a cross-platform solution. Contact Verance at www.verance.com to receive information on adoption of the technology for your platform.

Hasn't the AACS security technology employed in the Blu-ray format already been hacked? What does this mean for Cinavia?

In January and February of 2007, AACS LA confirmed that AACS Title Keys and Processing Keys have appeared on public web sites. They stated that these disclosures are unauthorized and indicate an attack on one or more players sold by AACS licensees. AACS also stated that the attack is limited to specific player implementations, and does not represent an attack on the AACS system itself, nor is it exclusive to any particular format.

The reported 'hacks' of AACS do not otherwise relate to Verance technology in any way. Verance Cinavia provides film content with an additional layer of security beyond that provided by AACS encryption. Cinavia allows devices to identify whether content originated on an AACS-protected format even if the encryption is no longer present, so the unauthorized use of the content can be automatically identified and restricted. There are currently **no** 'hacks' that permit circumvention of Verance technology.

In response to the attacks, AACS announced in April that it has taken action, in cooperation with relevant player manufacturers, to expire the encryption keys associated with the specific implementations of AACS-enabled software. Consumers can continue to play content that is protected by AACS technology by refreshing the encryption keys associated with their Blu-ray software players. This process is accomplished by a straightforward update of their player software.

What is the difference between the Verance audio watermark technology in VCMS/A and Cinavia?

VCMS/A (also known as the "ARIS/Solana-4C" or "Verance/4C" technology) is an audio watermarking technology for copyright protection of commercial music (sound recordings) that was introduced by Verance in 1999 and adopted by the 4C Entity as part of the content security architecture for the DVDAudio and SD-Audio formats and by the Secure Digital Music Initiative (SDMI) as a part of the SDMI Portable Device specification.

Cinavia is a new generation of audio watermarking technology for copyright protection of commercial film and video recordings that was introduced by Verance in 2004 and selected by AACS as part of the content security architecture for the Blu-ray format.

While they have some technology in common, VCMS/A and Cinavia are adapted for different uses and while they are non-interfering (i.e. both marks can be present in the same content and both detectors may be present in the same device), they are not interoperable (i.e. VCMS/A devices will not detect or respond to Cinavia watermarks, and vice versa). The two systems are based on different technical specifications, require independent implementations, and are licensed separately.



Is the same watermark technology used for DVD-Audio, SDMI, SD Card, and Blu-ray?

Verance provides two separate, but interoperable technologies. The 4C Entity and SDMI have adopted VCMS/A for use in DVD-Audio, SD-Audio, and SDMI products. AACCS has selected Cinavia for Blu-ray products. While the technologies are related, VCMS/A and Cinavia require separate licenses and separate implementations. To request a license for VCMS/A or Cinavia, visit www.verance.com/solutions/infoRequest.php.

Does Verance watermarking affect the audio quality of music or films?

No. Rigorous, independent subjective testing by industry experts (including Grammy-winning audio mastering engineers and Oscar-winning film sound mixers) has demonstrated conclusively that Verance watermarks meet the most demanding criteria for preservation of sonic realism and fidelity.

What is an Embedding Service Provider?

An Embedding Service Provider, or *ESP*, is a company or individual who has signed a Verance Watermark Technology ESP License (or is an affiliate of, or working on behalf of a Verance Watermark Technology ESP licensee) and is authorized to embed the Verance watermark into content.

What are the licensing terms for use of Verance watermark technology in my content or product?

Contact us to receive current licensing information.

What are the benefits of Cinavia for consumers?

The costs of music and movie piracy are borne by all participants in the entertainment marketplace, including honest consumers, and have slowed the industry's transition to more convenient and compelling ways of delivering entertainment. By reducing the economic impact of music and movie piracy, Verance watermarking can reduce costs and increase choices, benefiting consumers everywhere.

What about privacy? Do Verance watermarks contain any private or personally identifiable information that is related to a consumer or consumer device?

No, the Verance watermark contains no personally identifiable information (nor is it linked to any such information) about the consumer, their computer, player, or other digital media devices. The Verance watermark detector is not used to record or transmit any data to Verance, the device manufacturer, or any third-party.

Can Verance's products be used by private individuals to embed their own communications or possibly engage in secret communications or sabotage media content?

None of Verance's products or services facilitates secret communications between individuals. Any such use would require technical modification of our products and would be in violation of our license agreements. Verance technologies have been classified as EAR99 by the U.S. Department of Commerce and are approved for export to any country (other than those embargoed or considered to be Terrorist Organization & State destinations by the U.S. Government).