

 noisypeak
the **apex** of video over ip solutions



Datasheet

noisypeak digital **watermarking**

Unique granular digital watermarking technology for
Live and VOD content



Protection of
audio and video
assets



Tracking of
copyright
ownerships



Robustness
to copying
including
camripping



Facilitating of
digital forensics



Wide range
of content
usage on any
platform and
any distribution
model



solution brief

Digital Watermaking is the process of applying invisible, unheard encrypted packets into the content streams that later enable to identify the content per channel, territory or down to a specific end-user. Noisypeak offers end-to-end watermarking solution which can be applied to existing content items or include additional transcoding and DRM protection steps offered by Noisypeak Cloud.

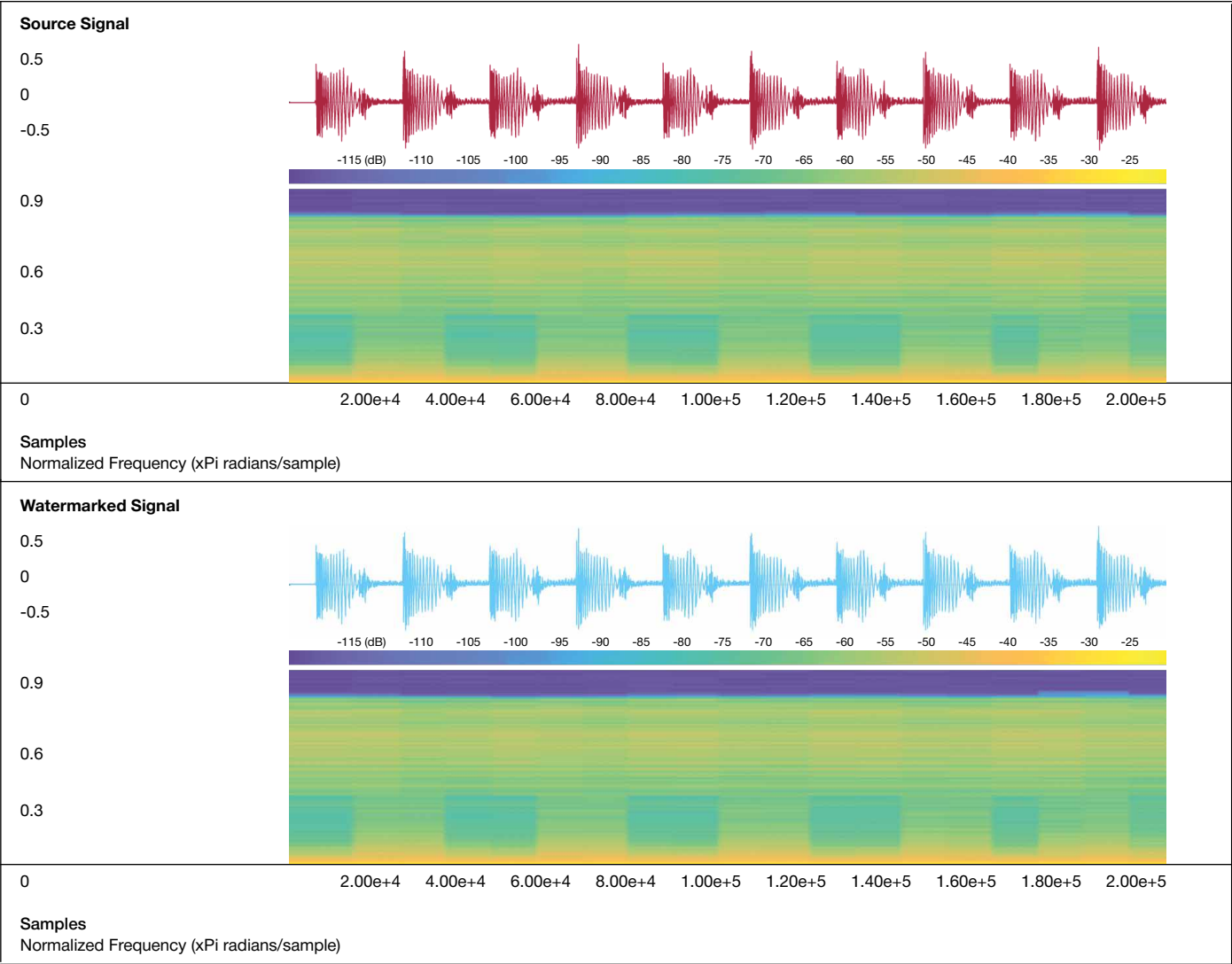
As part of the offer we provide tools and services to perform digital forensic to identify sources of the leak and content analysis.

key features

- Protection of audio and video assets;
- Tracking of copyright ownerships;
- Robustness to copying including campping;
- Facilitating of digital forensics;
- Wide range of content usage on any platform and any distribution model.

Can be applied to specific VOD asset, specific stream or to an individual user copy in the process of delivery of the content.

digital watermarks keep the signal almost **unmodified**



additional advantages

In contrast to the currently accepted procedures for embedding digital watermarks our technology offers additional advantages:

- Time and computing efforts are clearly reduced when generating individual copies;
- The secret watermark key is not needed to generate individually marked copies;
- The possibility to retrieve the unmarked original file;
- Digital watermarks are encrypted and there is no way to check their existence by unauthorized third-parties.

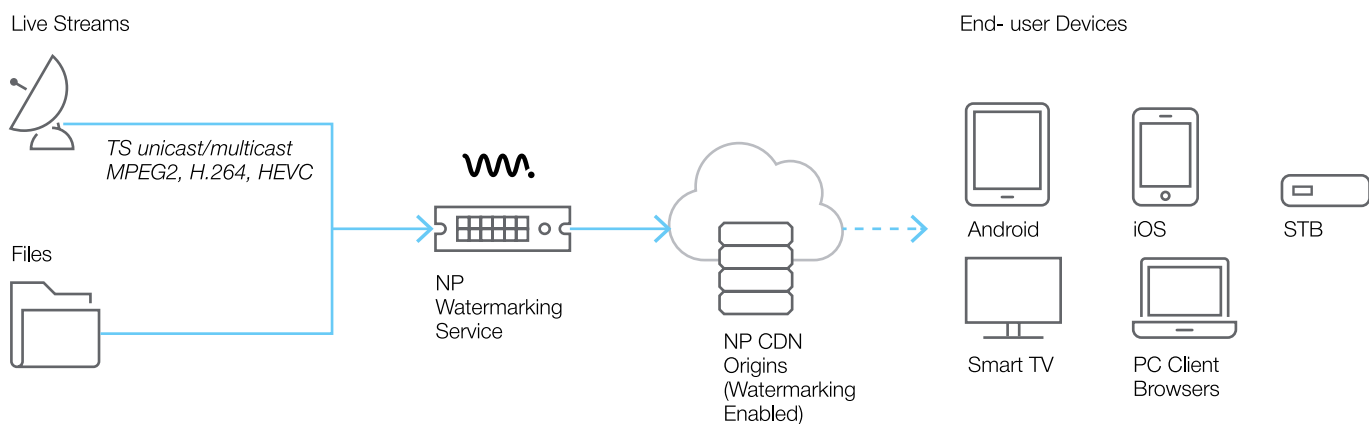
we offer

Noisypeak offers to implement audio watermarks into the audio-visual content. Application of watermarks can be done in the cloud or on premises.

The following types of content will be processed:

- HLS v2/3 (audio is muxed with TS video stream);
- HLS v5 (audio is a separate track in the playlist);
- DASH;
- Google Classic DRM (WVM, audio is muxed with TS video stream).

noisypeak digital watermarking solution



DRM digital watermarks

Digital watermark is an imperceptible method of signal coding within the digital audio/video streams contained the identifying information. Digital watermark not distorted or lost when the signal is passed through a conversion or compression processes.

Watermarks are encrypted to increase the resistance of the DRM systems. Encrypted watermarks are tamper resistant and can be used to identify that the media is authentic or to provide other information about the media such as its legal owner or content source. Content owners can identify the watermarks in the media files or streams by deciphering the content.

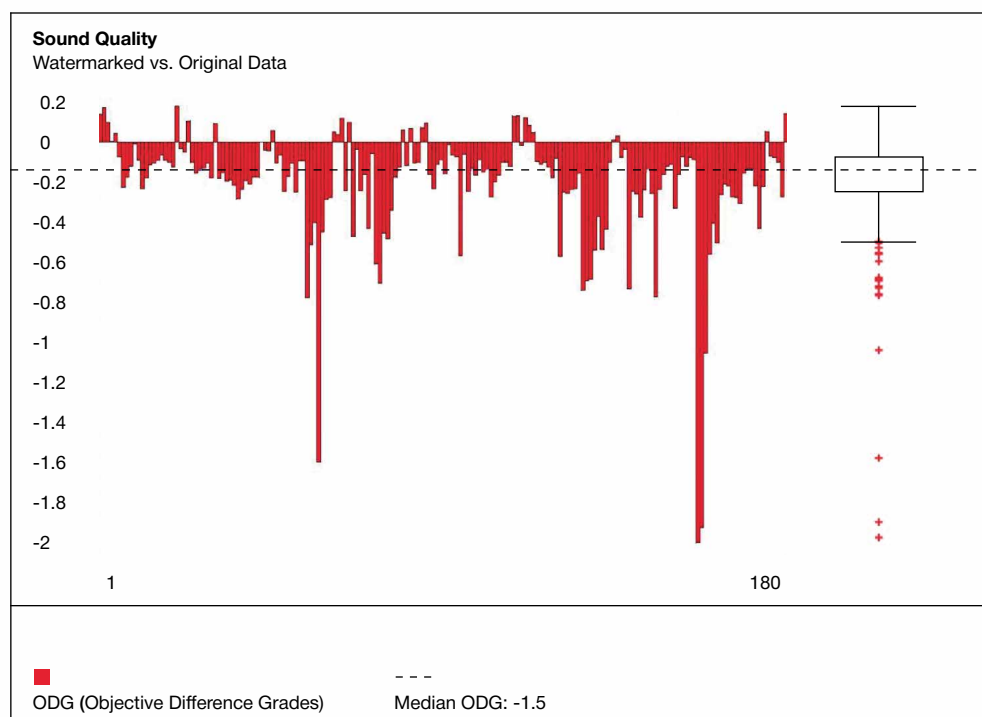
Figure above shows how watermarks can be added to a variety of media types to provide identification information. This example shows that digital watermarks can be added to digital audio or video media by making minor changes to the media content. The digital watermark is added as a code that is typically not perceivable to the listener or viewer of the media. This example shows that digital watermarks can be added to audio signals in the form of audio components (e.g. high frequency sound) or video components (color shift) that cannot be perceived by the listener or viewer.

quality assessment

Quality assessment is given by the commercial OPERA assessment tool which implements the PEAQ model. The tool details the sound quality difference between reference and test signal by the objective difference grades (ODG). The following table gives the definition of the ODG values and shows, in simple words, how much worse a test signal sounds to an average listener compared to the reference signal.

ODG	Perceived difference
0	"Inaudible"
-1	"Audible but no annoying"
-2	"Slightly annoying"
-3	"Annoying"
-4	"Very annoying"

To perform the quality assessment 180 audio tracks are used including pop music, classical music, audio book, interview recordings and camera recording. The x- axis shows the 180 files and on the y-axis the ODG value are printed on the left image. The table below shows the summarized results of all files in a boxplot.



noisypeak

Encoding and Cloud Solutions
sales@noisypeak.com
noisypeak.com

Noisypeak Sàrl
Rue Haldimand 10
1003 Lausanne
Switzerland
CHE-270.718.196

noisypeak.com



Your Distributor

Noisypeak, Noisypeak Connected, Noisypeak DigitalEye are the servicemarks and trademarks owned by Noisypeak. All other trademarks, service marks, trade names, product names and logos are the property of their respective owners. Any rights not expressly granted herein are reserved. Copyright © 2023 by Noisypeak. All rights reserved.