

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

## Datasheet

# noisypeak digitaleye

## Perceptual Visual Quality Assessment

*State-of-the-art perceptual visual quality assessment for video transcoding*



Computing of  
state-of-the-art  
objective quality  
metrics



Advice on  
transcoding  
a particular  
content



In-depth  
analysis of your  
transcoding  
chain



Benchmarking  
of your  
encoder to  
other available  
solutions



Deep-neural-  
network-based  
quality metric  
trained on real  
people opinion  
scores



# solution brief

Noisypeak welcomes you to DigitalEye, perceptual visual quality assessment tool. DigitalEye is the essential part of encoding and transcoding solution.

Most of the codecs today perform lossy compression, one needs to know and to understand to which extent the quality is degraded during this process comparing to the original image or video. If the loss in visual quality cannot be perceived by a human we say that an encoded image or video has transparent quality. DigitalEye helps to define a transparency threshold and optimize the transcoding or encoding parameters in a visual and interactive ways.

## key features

- Computing of state-of-the-art objective quality metrics
- Advice on transcoding a particular content
- In-depth analysis of your transcoding chain
- Benchmarking of your encoder to other available solutions
- Deep-neural-network-based quality metric trained on real people opinion scores

## we offer

Noisypeak has gained significant knowledge of video encoding and transcoding over the years of development of its flagship solutions based on Noisypeak Uniform Encoding Engine.

Today we are glad to offer project DigitalEye as a comprehensive solution to analyze your transcoding chain, recommend codecs and parameters for the best quality vs bitrate trade-off. We can automatically benchmark against hundreds variants to find what is the best for your environment, your content and your viewers.

As result in many cases we see up to 200% optimization of transcoding turn-around time and up to 75% optimization of related costs.

Computing a set of perceptual quality metrics:

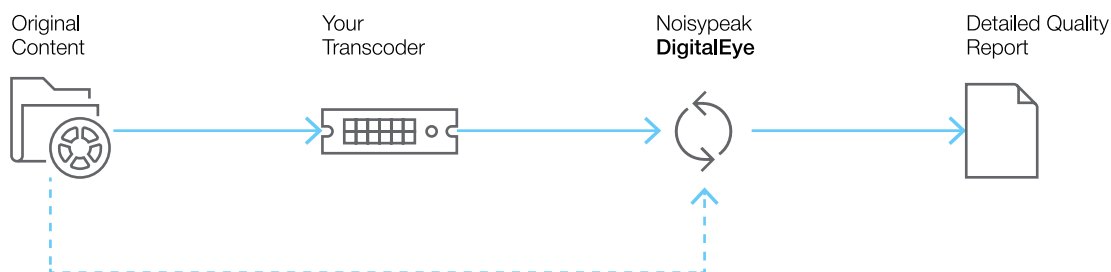
- PSNR
- SSIM
- VMAF
- DigitalEye

Comparing performance of your transcoder to:

- AOMedia AV1
- Nvidia NVENC HEVC and AVC
- Intel QuickSync HEVC, AVC, MPEG2
- libx264
- libx265
- VP8
- VP9
- any other available codec and codec's implementation

We create datasets with at least 496 renditions using bitrates ranging from 0.5mb/s to 30mb/s and framesizes from SD to UHD.

## noisypeak perceptual quality assessment solution



### Research

The technology used by Noisypeak for perceptual quality assessment is developed in collaboration with Multimedia Signal Processing Group at École polytechnique fédérale de Lausanne (EPFL), one of the best research centers in the world. QS World University Ranking 2017/2018 ranks EPFL as the world's 12th best university across all fields. Academic Ranking of World Universities 2016 ranks EPFL world 11th and Europe 2nd in the Engineering, Technology and Computer Sciences category. Noisypeak participates in the technology transfer program established by Swiss government with the goal to smoothly move state-of-the-art research from academia to industry.

Movie Parts



Initial Filter

Codecs:

Libx264 Libx265 NVENC 264 NVENC 265 QS 264 QS 265

Codec presets:

Fast Medium Slow

Resolution (px):

640x360 896x504 1024x576 1280x720 1920x1080 2560x1440 3840x2160 4096x2160

Bitrates (Mb/s):

6000 4000 2500 8000

Outputs

All. Matching filtered criteria: 8

Libx264

Slow

1280x720

6000

4500

Medium

1280x720

6000

4500

Libx265

Slow

1280x720

6000

4500

Medium

1280x720

6000

4500

☆ Favorites. Drop profiles here from left columns

245

Libx264, Fast, 1280x720, 6Mbs

Info

245

Libx264, Fast, 1280x720, 6Mbs

Info

245

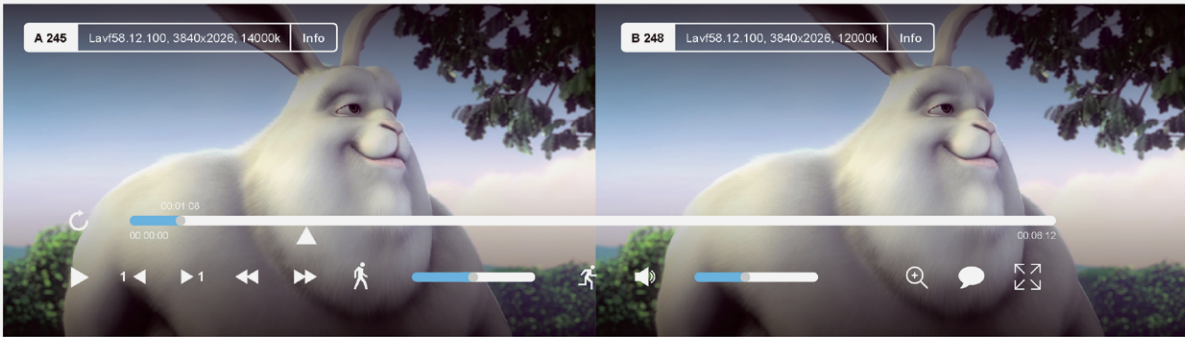
Libx264, Fast, 1280x720, 6Mbs

Info

245

Libx264, Fast, 1280x720, 6Mbs

Info

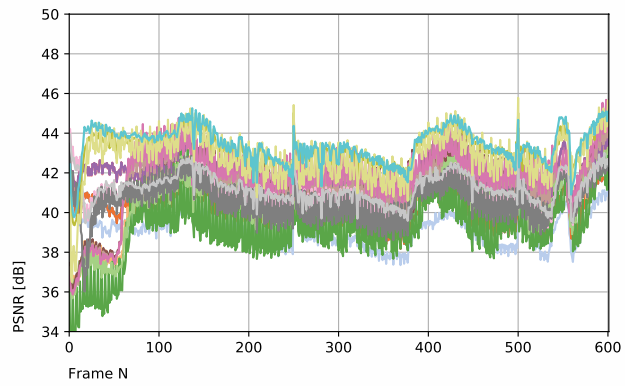
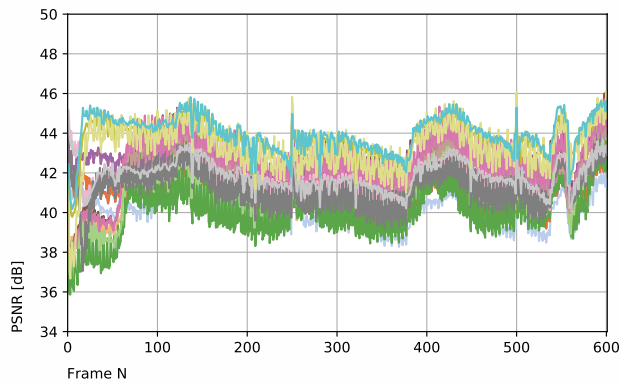


Filename:	
Netflix_Aerial_3840x2160_30fps_8bit_yuv420p_h264_qsv_medium_10000k.mp4	
File Metadata	
Format	QuickTime / MOV (mov,mp4,m4a,3gp,3g2,mj2)
Size	24711803 Bytes
Bitrate	9868 kB/s
Major brand	isom
Minor version	512
Compatible brands	isom iso2 avc1 mp41
Encoder	Lavf58.12.100
Stream #0:0	
Media type	Video
Codec	h264 (High) (avc1 / 0x31637661)
Pixel format	yuv420p
Size	3840x2026 [SAR 2026:2025 DAR 256:135]
Bitrate	9885 kb/s
FPS	30
Number of frames	601
Stream #0:1	
Media type	Audio
Codec	ac3 ([P] [O][O] / 0x2000)

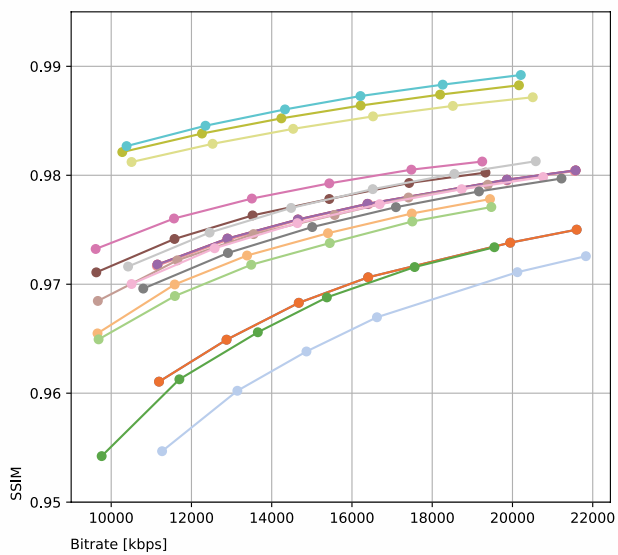
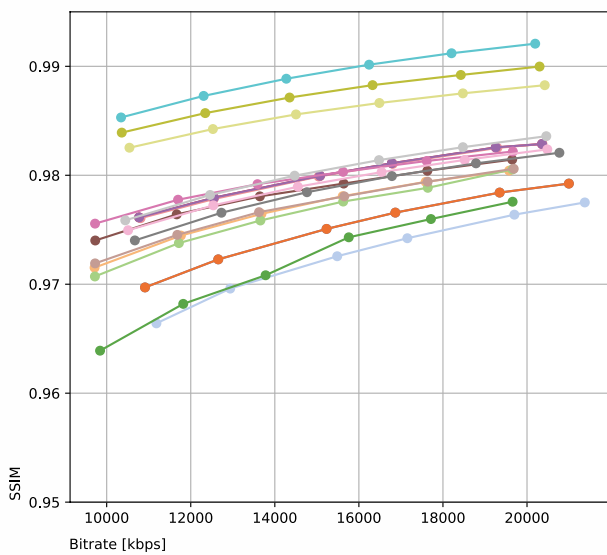
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# in-depth analysis of your transcoding chain



h264\_nvenc\_medium h264\_qsv\_medium hevc\_nvenc\_medium hevc\_qsv\_medium libx264\_medium libx265\_medium  
 h264\_nvenc\_veryfast h264\_qsv\_veryfast hevc\_nvenc\_veryfast hevc\_qsv\_veryfast libx264\_veryfast libx265\_veryfast  
 h264\_nvenc\_veryslow h264\_qsv\_veryslow hevc\_nvenc\_veryslow hevc\_qsv\_veryslow libx264\_veryslow libx265\_veryslow



h264\_nvenc\_medium h264\_qsv\_medium hevc\_nvenc\_medium hevc\_qsv\_medium libx264\_medium libx265\_medium  
 h264\_nvenc\_veryfast h264\_qsv\_veryfast hevc\_nvenc\_veryfast hevc\_qsv\_veryfast libx264\_veryfast libx265\_veryfast  
 h264\_nvenc\_veryslow h264\_qsv\_veryslow hevc\_nvenc\_veryslow hevc\_qsv\_veryslow libx264\_veryslow libx265\_veryslow



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