



Video Analyzer User's Guide

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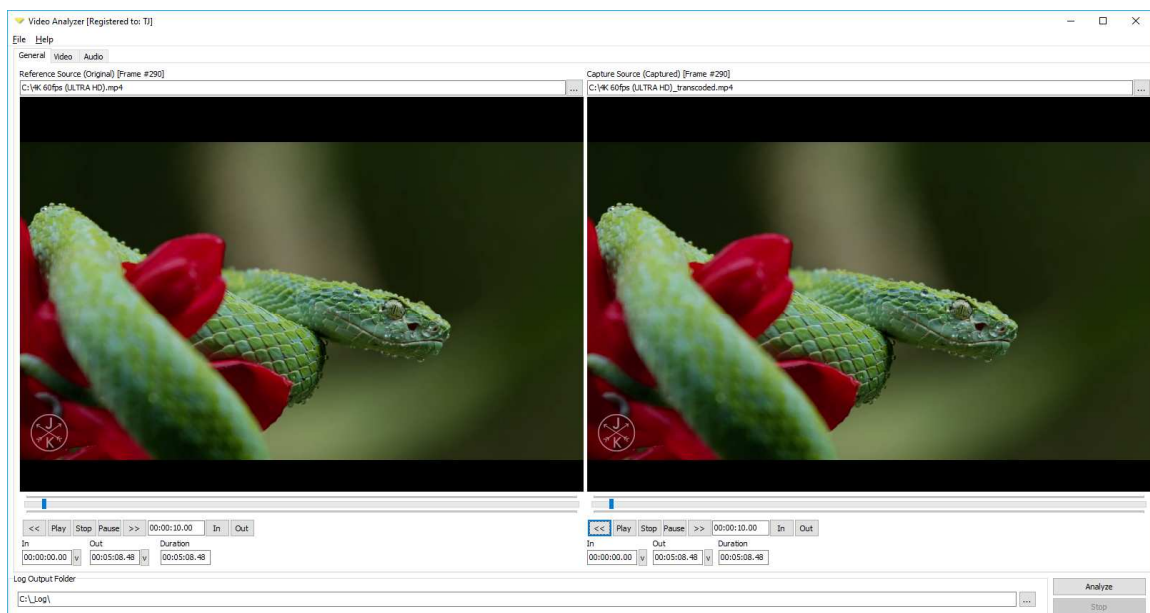
The logo for Jongbel Media Solutions features the word "JONGBEL" in a bold, blue, sans-serif font. The letter "O" is stylized with a yellow and orange circular graphic element. Below "JONGBEL" is the phrase "MEDIA SOLUTIONS" in a smaller, blue, sans-serif font.

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1. Overview

Video Analyzer software solution provides the user with the ability to compare the quality of two video and audio streams. The solution produces a log with the MSE, PSNR and overall difference between the two streams on a frame-by-frame basis. Supported media formats are MP4, MXF, MPEG TS/PS with H.265, H.264, MPEG-2, AAC, MPA codecs as well as raw video RGB32, YUY2, UYVY, HDYC formats. The product can also detect black and freeze frames, as well as audio clipping.



The product is a perfect solution for measuring the video and audio quality after file-based transcoding or encoding of media files. The measured MSE, PSNR and overall difference can be used for detecting audio/video glitches, encoding artifacts, skipped and repeated frames and other encoding and transcoding anomalies. The real-time chart graphical analysis representation allows assessment of the quality on the fly, while the streams are being processed.

The HTML log contains the full frame-by-frame analysis information for both audio and video streams, graphical charts for quick overview of the MSE, PSNR, overall streams difference, audio volume, black and freeze frames as well as video frame difference frames with 5% and 10% threshold. Apart from the HTML log, which can be used for manual assessment of the quality, the product produces a CSV log with all the frame-by-frame quality information, which can be used in automated workflows. The CSV generated log is a standard input format for many automated systems, allowing to take further decisions based on the measured audio and video quality.

The following formats are supported:

- QuickTime Media File (.mov)
- MP4 Media File (.mp4, .m4v)
- MP4 Protected Media File (.m4p)
- 3GPP Media File (.3gp)
- 3GPP2 Media File (.3g2)
- HEVC/H.265 Video
- AVC/H.264 Video
- MPEG-2 Video
- RGB32 Video
- YUY2 Video
- UYVY Video
- HDYC Video
- AAC Audio
- MPEG Audio

1.1 General Features

- Video total difference computation in %
- Video MSE computation on frame-by-frame basis

- Video PSNR computation on frame-by-frame basis
- Video black frame detection
- Video freeze frame detection
- Video difference map
- Video 5% difference map
- Video 10% difference map
- Video Min, Max, Avg difference computation in %
- Audio Volume computation
- Audio Min, Max, Avg difference computation in %
- Audio clipping detection
- Compressed and raw media import
- HTML log output
- CSV log output

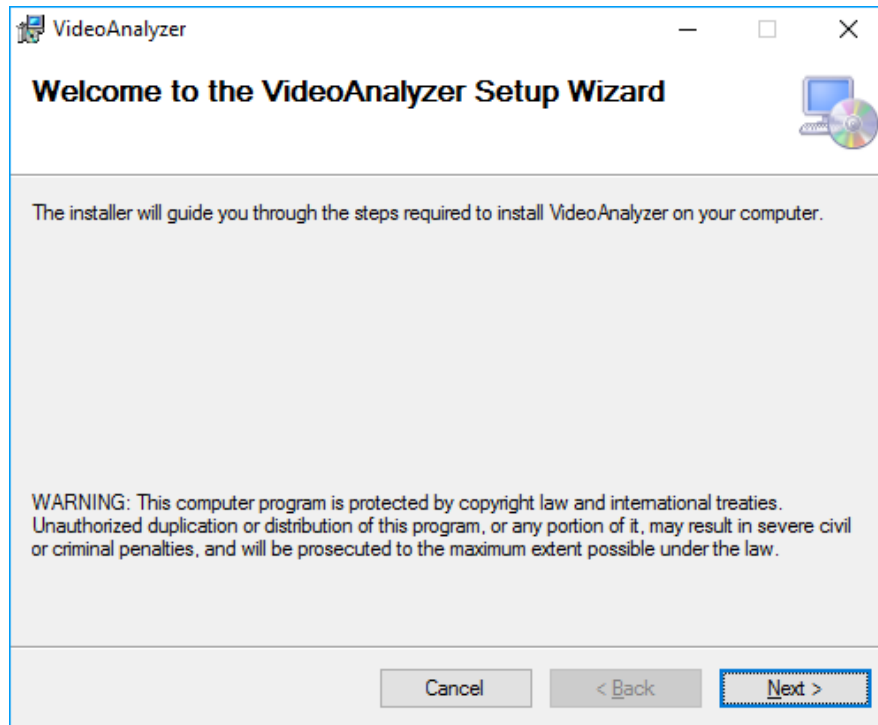
2. Installation

2.1 Installing Video Analyzer

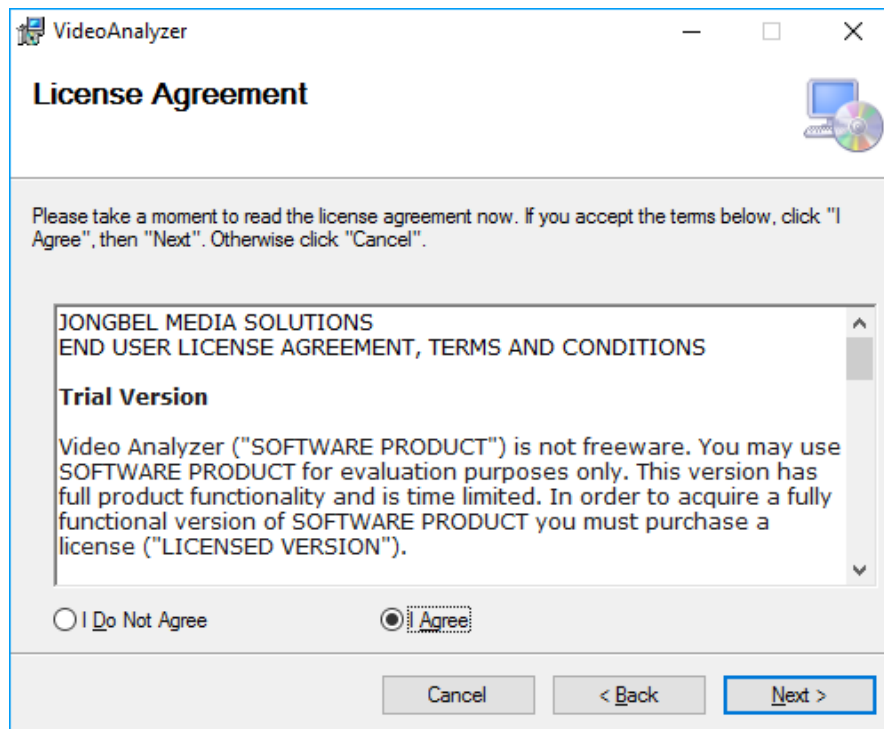
Before installing the **Video Analyzer** solution, make sure that any previous version of the product has been uninstalled refer 2.2.

The installation package of **Video Analyzer** is distributed in msi file. After downloading the file from the official Jongbel Media Solutions web site – www.jongbel.com, execute the installation by starting the msi file.

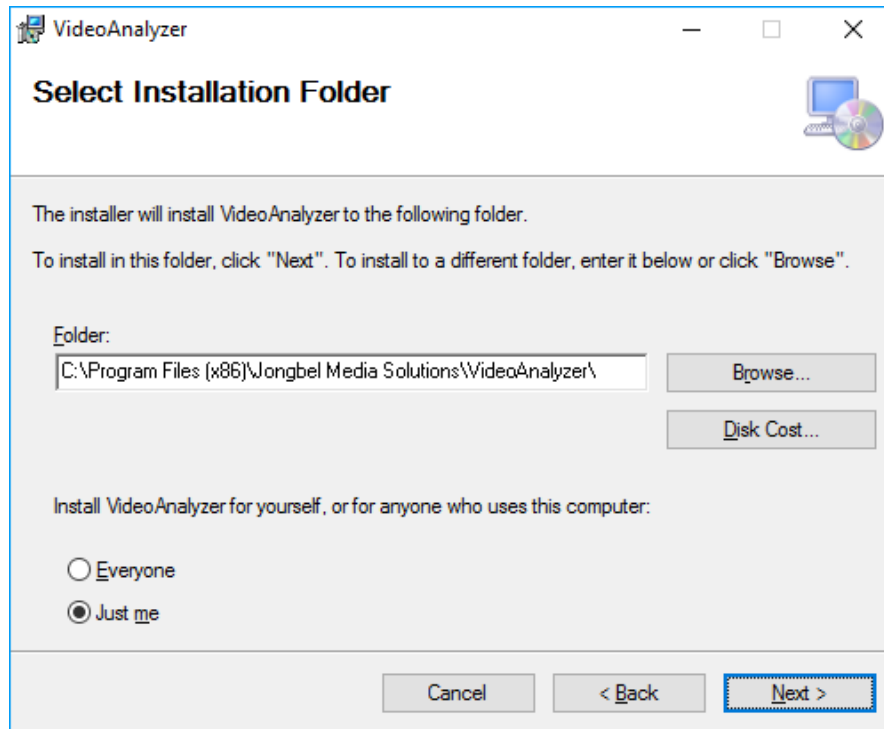
First a Welcome dialog pops up. Click “Next” in order to proceed.



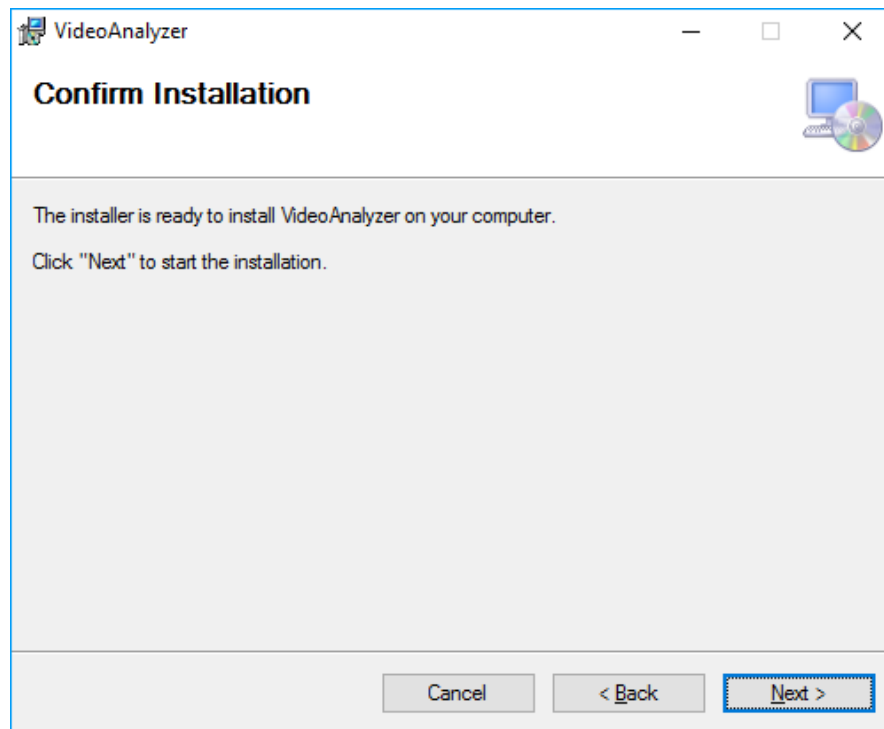
After this a License Agreement dialog pops up. Read the agreement carefully, select "I Agree" if you agree all the terms and click "Next" to proceed.



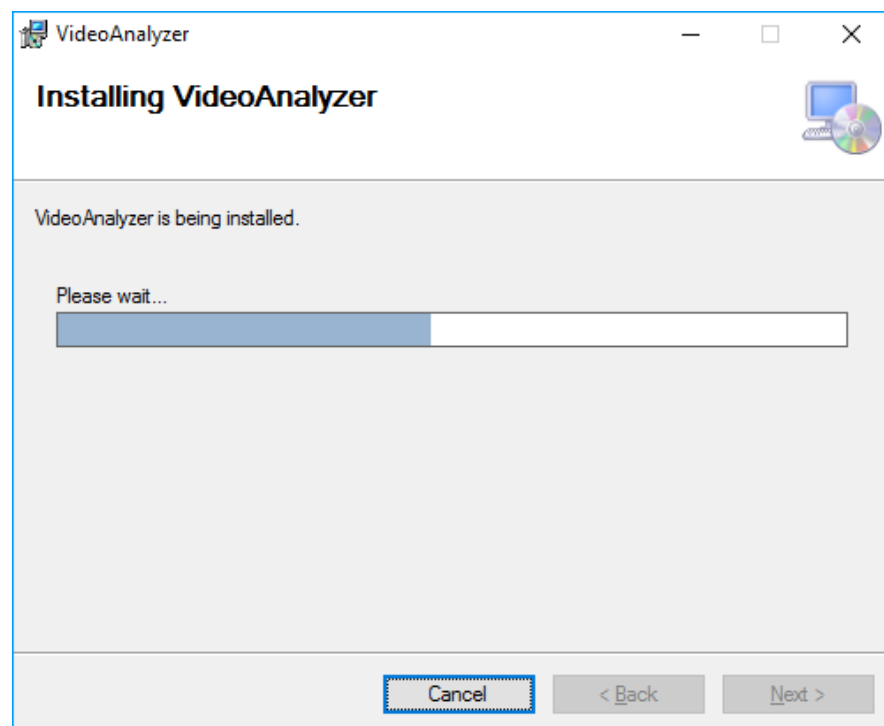
The next window shown specifies the installation product location and user access to the product. Change the destination product folder and user access if needed and click “Next” to proceed.



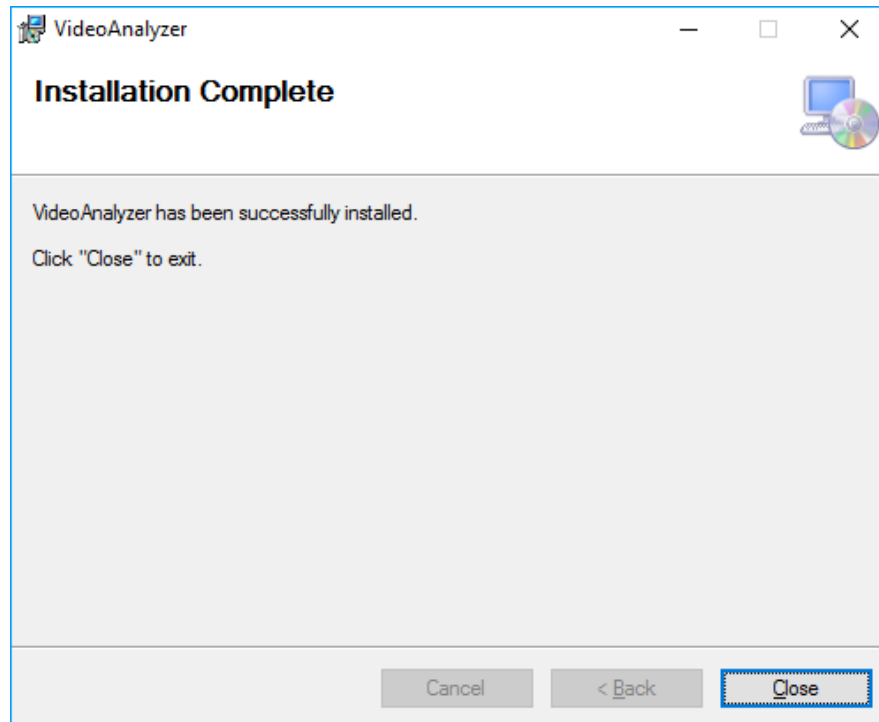
The next dialog is a confirmation dialog. Confirm by clicking “Next” in order to start the installation procedure.



While the product is being installed an "Installing" window shows the installation progress. Wait until the product is being installed.



At the end an “Installation Complete” dialog pops up, which denotes the successful Video Analyzer installation. Click “Close” to finalize the process.



2.2 Uninstalling Video Analyzer

The application can be removed opening the Control Panel – Programs and Features. Select the **Video Analyzer** application and click Uninstall.

3. Functions

The following functions are available from the application **File** menu.

Load Reference File – Loads a reference media file in the left reference panel.

Load Capture File – Loads a capture media file in the right capture panel.

Analyze – Starts the analysis process between the reference and capture media files.

Exit – Closes the application.

The following functions are available from the application **Help** menu.

Registration – Opens the product registration form. This function is available only in the full licensed version of the product.

Check For Updates – Enables/Disables automatic check for updates.

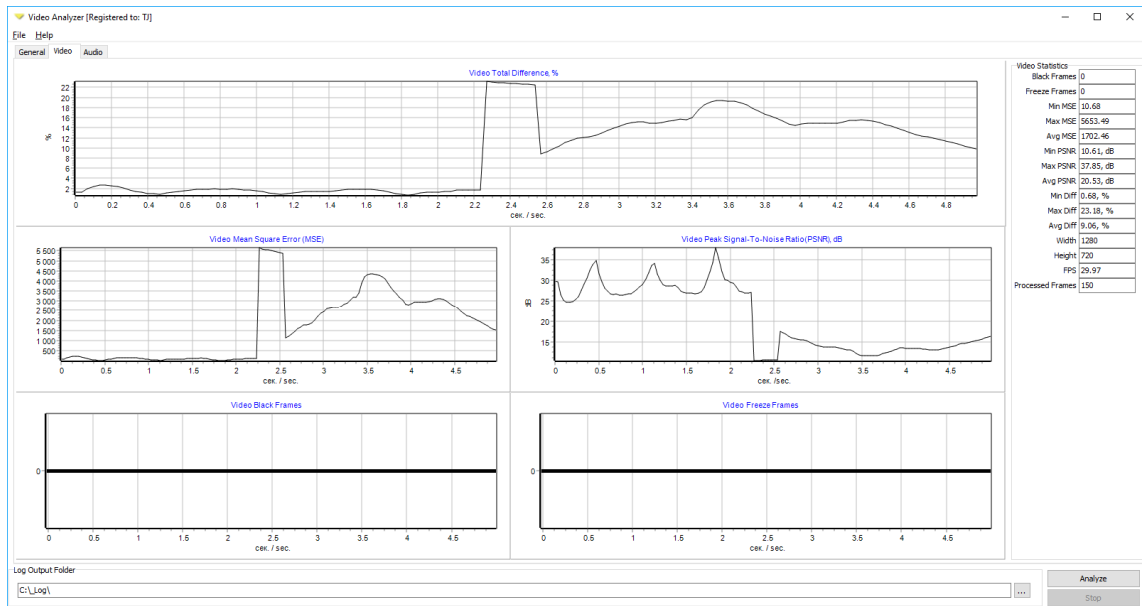
About – Opens the About dialog box of the product.

Both Reference and Capture control modules are equipped with media control and seeking buttons - Play, Stop, Pause, Frame backward, Frame forward, allowing accurate positioning and setting of In/Out points for the further analysis.

At the bottom of the application is set the output log folder, where the HTML and CSV logs will be generated.

4. Video statistics

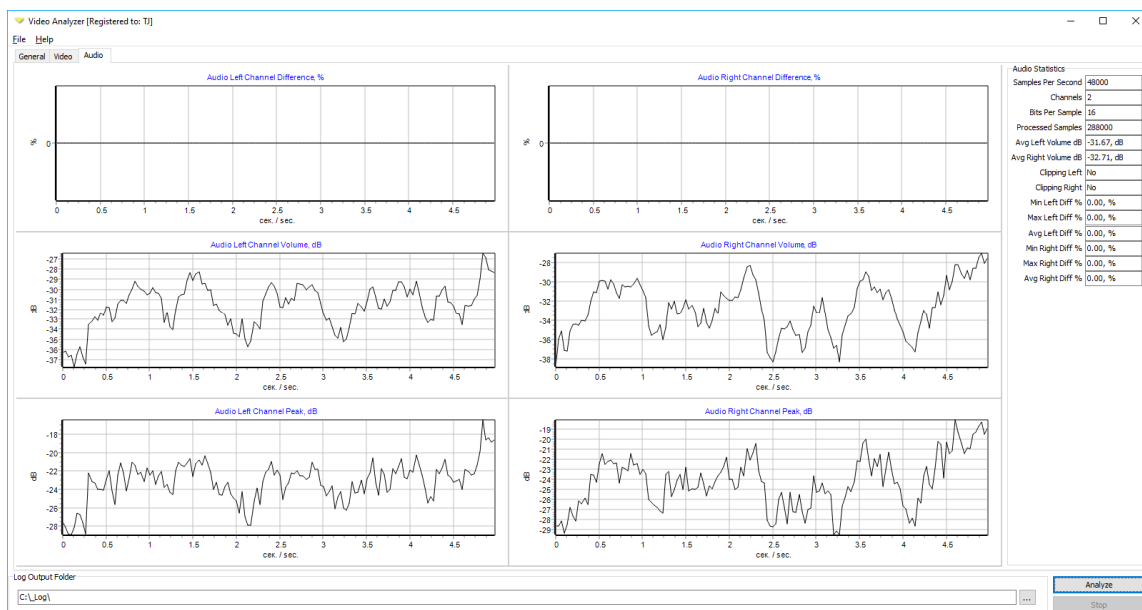
The video statistics tab shows the following analysis video statistics: Video Total Difference, Video Mean Square Error (MSE), Video Peak Signal To Noise Ratio (PSNR), Video Black Frames detection and Video Freeze Frames Detection.



On the right side, the Video Statistics group contains the video analysis statistics. All the analysis data can be accessed after the analysis and dynamically during the analysis.

5. Audio statistics

The audio statistics tab shows the following analysis audio statistics: Audio Left/Right channel difference in %, Audio Left/Right channel volume in dB, Audio Left/Right channel Peak in dB.



On the right side, the Audio Statistics group contains the audio analysis statistics. All the analysis data can be accessed after the analysis and dynamically during the analysis.

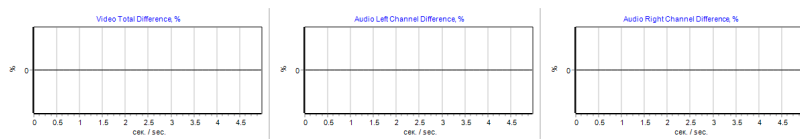
6. Reports

The main generated report is of HTML type. Below are listed some of the report fields.

General Media Analysis Information And Results.

General Media Analysis Information And Results

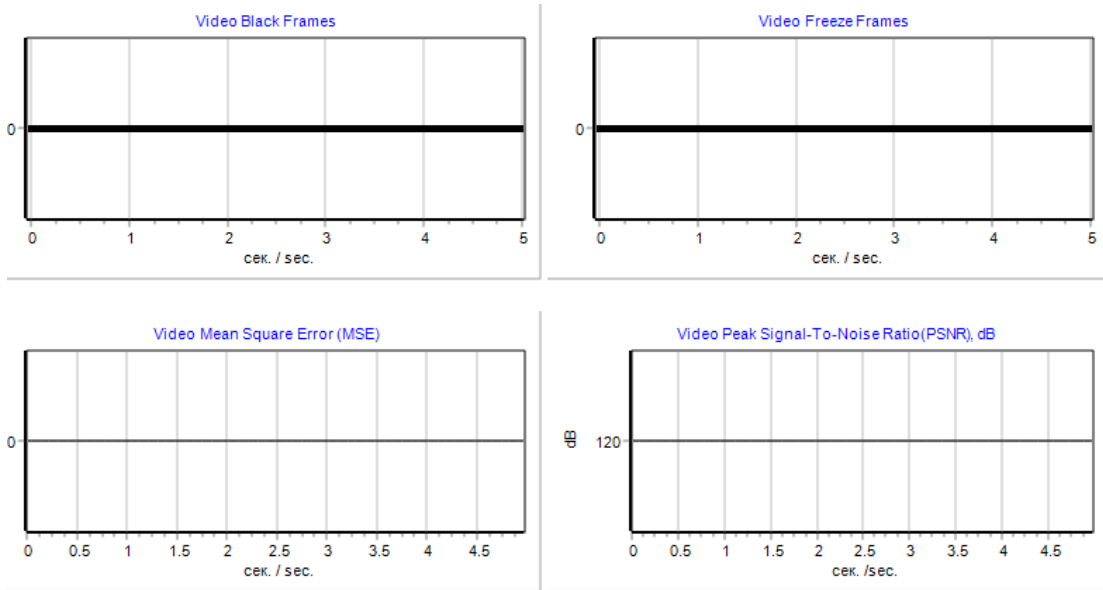
Parameter	Information	Reference Value	Value
Reference Media		-	C:\4K_60fps (ULTRA HD).mp4
Capture Media		-	C:\4K_60fps (ULTRA HD)_transcoded.mp4
Media Duration		-	00:00:05:00
Video Total Difference, %		< 5.00 %	0.00, %
Audio Left Channel Total Difference, %		< 10 %	0.00, %
Audio Right Channel Total Difference, %		< 10 %	0.00, %
Audio Clipping		No	No



Video Media Analysis Information And Results.

Video Media Analysis Information And Results

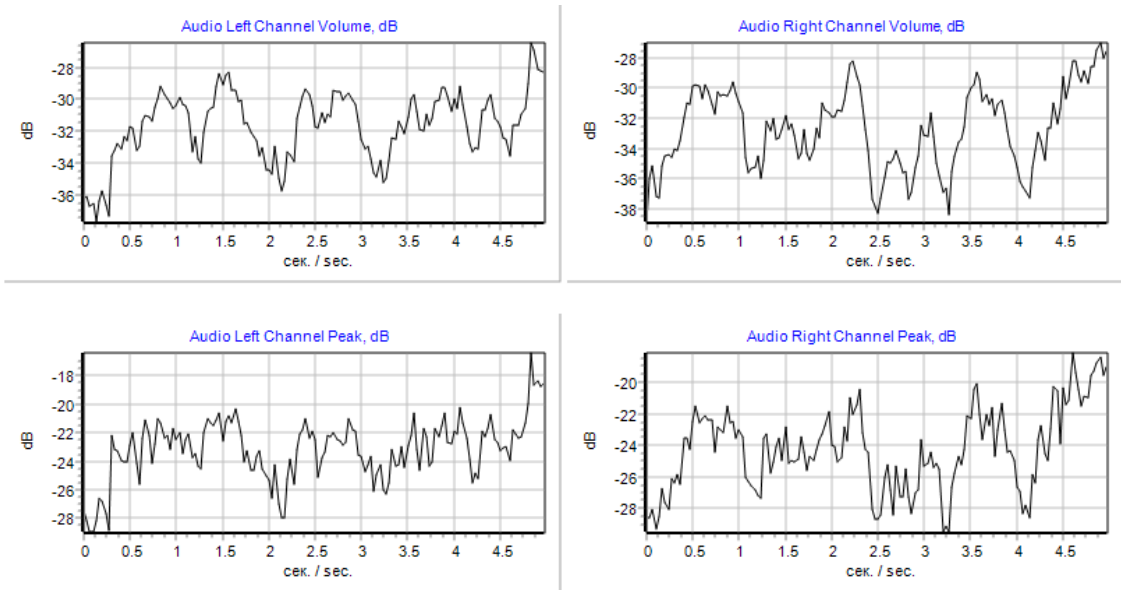
Video Parameter	Information	Reference Value	Value
Video Resolution		-	1280 x 720
Video Frames Per Seconds		-	29.97
Video Processed Frames Count		-	150
Video Difference Avg., %		< 5.00 %	0.00, %
Video Difference Min., %		< 5.00 %	0.00, %
Video Difference Max., %		< 5.00 %	0.00, %
Video Mean Square Error (MSE) Avg.		< 162.56	0.00
Video Mean Square Error (MSE) Min.		< 162.56	0.00
Video Mean Square Error (MSE) Max.		< 162.56	0.00
Video Peak Signal-To-Noise Ratio (PSNR) Avg., dB		> 26.02, dB	120.00, dB
Video Peak Signal-To-Noise Ratio (PSNR) Min., dB		> 26.02, dB	120.00, dB
Video Peak Signal-To-Noise Ratio (PSNR) Max., dB		> 26.02, dB	120.00, dB
Video Black Frames Count		0	0
Video Freeze Frames Count		0	0



Audio Media Analysis Information And Results.

Audio Media Analysis Information And Results

Audio Parameter	Information	Reference Value	Value
Audio Samples Per Second, Hz		-	48000, Hz
Audio Mono Channels Count		-	2
Audio Bits Per Samples		-	16
Audio Samples Processed		-	288000
Audio Left Channel Volume Avg., dB		-	-31.67, dB
Audio Right Channel Volume Avg., dB		-	-32.71, dB
Audio Left Channel Difference Avg., %		< 10%	0.00, %
Audio Left Channel Difference Min., %		< 10%	0.00, %
Audio Left Channel Difference Max., %		< 10%	0.00, %
Audio Right Channel Difference Avg., %		< 10%	0.00, %
Audio Right Channel Difference Min., %		< 10%	0.00, %
Audio Right Channel Difference Max., %		< 10%	0.00, %
Audio Left Channel Clipping		No	No
Audio Right Channel Clipping		No	No



Video Frame

Video Frame Analysis

Time	Original Frame	Captured Frame	Difference Frame	Frame Mask 5% Difference	Frame Mask 10% Difference
00:00:00.00					
00:00:00.97					

Video and Audio Detailed frame analysis.

Video Detailed Analysis

Video Frame №	Time Start	Time End	Video Total Difference, %	Mean Square Error	Peak Signal-To-Noise Ratio, dB	Black Frame	Freeze Frame
0	00:00:00.00	00:00:00.03	0.00, %	0.00	120.00, dB	No	No
1	00:00:00.03	00:00:00.07	0.00, %	0.00	120.00, dB	No	No
2	00:00:00.07	00:00:00.10	0.00, %	0.00	120.00, dB	No	No
3	00:00:00.10	00:00:00.13	0.00, %	0.00	120.00, dB	No	No
4	00:00:00.13	00:00:00.17	0.00, %	0.00	120.00, dB	No	No
5	00:00:00.17	00:00:00.20	0.00, %	0.00	120.00, dB	No	No
6	00:00:00.20	00:00:00.23	0.00, %	0.00	120.00, dB	No	No
7	00:00:00.23	00:00:00.27	0.00, %	0.00	120.00, dB	No	No
8	00:00:00.27	00:00:00.30	0.00, %	0.00	120.00, dB	No	No

Audio Detailed Analysis

Audio Frame #	Time Start	Time End	Left Channel Level, dB	Right Channel Level, dB	Left Channel Peak, dB	Right Channel Peak, dB	Left Channel Level Difference, %	Right Channel Level Difference, %	Audio Left Channel Clipping	Audio Right Channel Clipping
0	00:00:00.00	00:00:00.03	-36.26, dB	-38.82, dB	-27.49, dB	-28.60, dB	0.00, %	0.00, %	No	No
1	00:00:00.03	00:00:00.07	-36.11, dB	-35.98, dB	-28.18, dB	-28.60, dB	0.00, %	0.00, %	No	No
2	00:00:00.07	00:00:00.10	-36.74, dB	-35.17, dB	-28.93, dB	-28.10, dB	0.00, %	0.00, %	No	No
3	00:00:00.10	00:00:00.13	-36.56, dB	-37.12, dB	-28.93, dB	-29.32, dB	0.00, %	0.00, %	No	No
4	00:00:00.13	00:00:00.17	-37.69, dB	-37.23, dB	-28.18, dB	-28.52, dB	0.00, %	0.00, %	No	No
5	00:00:00.17	00:00:00.20	-36.40, dB	-35.16, dB	-26.61, dB	-26.75, dB	0.00, %	0.00, %	No	No
6	00:00:00.20	00:00:00.23	-35.72, dB	-34.45, dB	-26.78, dB	-27.61, dB	0.00, %	0.00, %	No	No
7	00:00:00.23	00:00:00.27	-36.67, dB	-34.42, dB	-27.63, dB	-28.10, dB	0.00, %	0.00, %	No	No
8	00:00:00.27	00:00:00.30	-37.38, dB	-34.54, dB	-28.88, dB	-26.11, dB	0.00, %	0.00, %	No	No