A Brief Overview of QCTools

Reto Kromer • AV Preservation by reto.ch

Open-Source Tools and Resources for Audio-Visual Archives
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Donostia (San Sebastián), Spain
4–7 June 2024

Quality Control

- verify technical metadata
- analyse signal
- view and/or listen file

History

QCTools (GUI)

- Angelo Sacerdote, Dave Rice and Skip Elsheimer
- 2013 AMIA Conference

qcli (CLI) from version 0.8.0 (2017-04-15)

The QCTools Family

- QCTools
- qcli
- SignalServer

Image Analysis

Image Filter

signalstats

- YMIN, UMIN, VMIN, YMAX, UMAX, VMAX
- tout, vrep, brng
- psnr, mse, ssim
- …

➔ https://www.ffmpeg.org/ffmpeg-filters.html #signalstats

bavc BAY AREA VIDEO COALITION

QC TOOLS

QCTools Cheat Sheet

Graph Domain	Graph(s) Name	8-bit values	10-bit values	Ideal Range (8/10)
Y Channel	Y MIN, Y LoW, Y AVG, Y HIGH, Y MAX	0-255	0-1023	16/64 (Y Low) 128/512 (Y AVG) 235/940 (Y HIGH)
UV Channels	MIN, LoW, AVG, HIGH, MAX	0-255	0-1023	16/64 (Low) 85/341-170/682 (AVG) 240/960 (HIGH)
Saturation	SAT MIN, SAT LoW, SAT AVG, SAT HIGH, SAT MAX	0-88.7 (75 %) 88.7-118.2 (100%) 118.2-181.02 (Illegal YUV)	0-354.8 (75%) 354.8-472.8 (100%) 472.8-724.08 (Illegal YUV)	75% values
Hue	Hue	0-360°	0-360°	120-147°
Temporal outliers	ToUT	0-1		0-0.009
Vertical Line Repetitions	VREP	0-1		0
Mean Square Error per Field	MSEf	0-1		As close to 0 as possible
Peak Signal to Noise Ratio	PNSR	0-60 dB		30-50 dB

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Stat	Description	Ideal Range
ToUTc	The number of frames with a ToUT value greater than 0.005	<10
SATb	The number of frames where the maximum saturation is over 88.7, which would indicate levels outside of broadcast range	<1000
SATi	The number of frames where the maximum saturation is over 118.2, which would indicate levels outside of legal YUV levels	<1000
BRNGav	The percentage of frames with BRNG value greater than zero	<.02 (2%)
BRNGc	The number of frames with a BRNG value greater than 0.02	<1000
MSEfY	The number of frames with a MSEfY value greater than 1000	<10

Sound Analysis

Sound Filter

astats

- showspectrum
- showvolume
- showwaves
- …

→ https://www.ffmpeg.org/ffmpeg-filters.html #astats

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