

Color fidelity for Web Browsers

Issue	Chrome on windows	Chrome on OSX	Chrome on Linux	Firefox on windows	Firefox on OSX	Firefox on Linux	Safari on OSX	Safari on IOS	How to test
Uses monitor ICC Profiles for png files	Yes *	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Do you see differences in the images here: https://richardssam.github.io/ffmpeg-tests/tests/greyramp-osx/compare.html?.png
Uses monitor ICC Profiles of native OS for mp4 and mov	No	Yes	no	no	no	no	Yes	?	
Ability to disable system profile		no	no	Yes	Yes	Yes	no	no	
Obeys NCLC Color Transfer Characteristic Parameters (TRC)	Partially see below	no	no	no	no	no	Partially - see below	no	If the following link https://richardssam.github.io/ffmpeg-tests/tests/greyramp-osx/compare.html?.colortrc shows all the ramps looking the same, its not supported.
Color TRC 1 = rec709	No. - See note 1	no	no	no	no	no	No. - See note 1	no	
Color TRC 2 = undefined	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Color TRC 4 = gamma22	Yes - see note 3	no	no	no	no	no	no	no	
Color TRC 5 = gamma28	Yes - see note 3	no	no	no	no	no	no	no	
Color TRC 8 = linear	Yes - see note 3	Yes	no	no	no	no	Yes	no	
Color TRC 9 = log			no	no	no	no		no	
color TRC 13 = sRGB	Yes - see note 3	Yes		no	no		Yes	no	
Supports gamma in mov file	no	no	no	no	no	no	Yes	no	
Interprets full range 8-bit YUV mp4's	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Supports 10-bit h264 mp4's	Yes	Yes	Yes	no	no	no	no	no	
h265 support	no	no	no	no	no	no	yes?	no	https://caniuse.com/hevc
Gamut Support									
Supports different gamuts with ICC profiles in PNG	Yes	Yes	Yes (See note 3)	no	no	no	Yes	Yes	See https://wide-gamut.com
Obeys NCLC Primaries (e.g. will it translate rec2020 media to display correctly)	Converts to rec709 gamut, ignores monitor.	Yes	no	no	no	no	Yes	Converts to rec709 gamut, ignores monitor.	If you see the text Rec2020 and your monitor does not support rec2020 then the browser is not supported: https://richardssam.github.io/ffmpeg-tests/gamuttests/iccgamut/greyscale-rec2020.mp4

Notes:

1. TRC 1 (rec709 camera) for chrome on windows uses a sRGB transfer function. see comment 32: <https://bugs.chromium.org/p/chromium/issues/detail?id=784713#c35> or ~line995 of https://chromium.googlesource.com/chromium/src+/refs/heads/main/ui/gfx/color_space.cc
2. Color shift on Chrome, reported: <https://bugs.chromium.org/p/chromium/issues/detail?id=1262622> this seems to only be an issue with multiple videos on the same page.
3. The wide-gamut.com page is reporting that it has a wide gamut, but I'm not seeing the Red W on the test page. It would be good to get confirmation.

Chrome on windows and linux

You have the option of forcing what sort of display you would like to default to. This directly affects how video is rendered.

<chrome://flags/#force-color-profile>

So you can force the display to be a sRGB display and all media is adjusted accordingly. You can similarly do this for Display-P3, "Color-Spin with gamma 2.4", HDR10.

Other Links

- http://www.lagom.nl/lcd-test/gamma_calibration.php
- <https://mux.com/blog/your-browser-and-my-browser-see-different-colors/>
- <https://www.wide-gamut.com/test> - Awesome page for testing wide-gamut displays.
- <https://www.benq.eu/en-uk/knowledge-center/knowledge/display-p3-monitor-for-creative-work.html>

Test Images