DEEPCAL / DISPLAY CALIBRATION

Professional Display Calibration Report

Calibration Pipeline	Target Gamut	Target EOTF
1D+3D	SRGB/REC709	Power 2.20

Target White Point	Black Point Compensation	Generated
D65 1931 2°	Disabled	CST (UTC+08:00) 2026-10-09 22:17:22

DeepCal Advanced Color Science Engine

01 / Executive Summary

Calibration Summary

SRGB/REC709 · Power 2.20 · D65 1931 2°

Average ΔE2000	Average ΔE ITP	3D CAM2016 Volume Coverage	Average CCT
0.19	0.62	99.8%	6,500 K

Maximum ΔE2000	Maximum ΔE ITP	3D CAM2016 Volume Ratio	Contrast Ratio
0.95	4.83	101.5%	585,530:1

Metric	Target	Before	After	Change
Average ΔE2000	0.00	5.11	0.19	-4.92
Maximum ΔE2000	0.00	8.13	0.95	-7.18
Average ΔE ITP	0.00	24.17	0.62	-23.54
Maximum ΔE ITP	0.00	53.55	4.83	-48.72
3D CAM2016 Gamut Volume Coverage	100.0%	100.0%	99.8%	-0.2%
3D CAM2016 Gamut Volume Ratio	100.0%	142.9%	101.5%	-41.3%
2D u'v' Gamut Coverage	100.0%	100.0%	99.9%	-0.1%
2D u'v' Gamut Area Ratio	100.0%	150.4%	100.1%	-50.4%
Contrast Ratio	5,747:1	1,029,521:1	585,530:1	-443992:1
Average CCT	6,503 K	6,146 K	6,500 K	+354 K
Minimum Luminance	0.0000 nits	0.0001 nits	0.0001 nits	+0.0001 nits
Maximum Luminance	85.960 nits	88.539 nits	86.073 nits	-2.466 nits
Average Gamma	2.200	2.262	2.215	-0.048
Average Duv	0.003217	-0.001794	0.003172	+0.004965

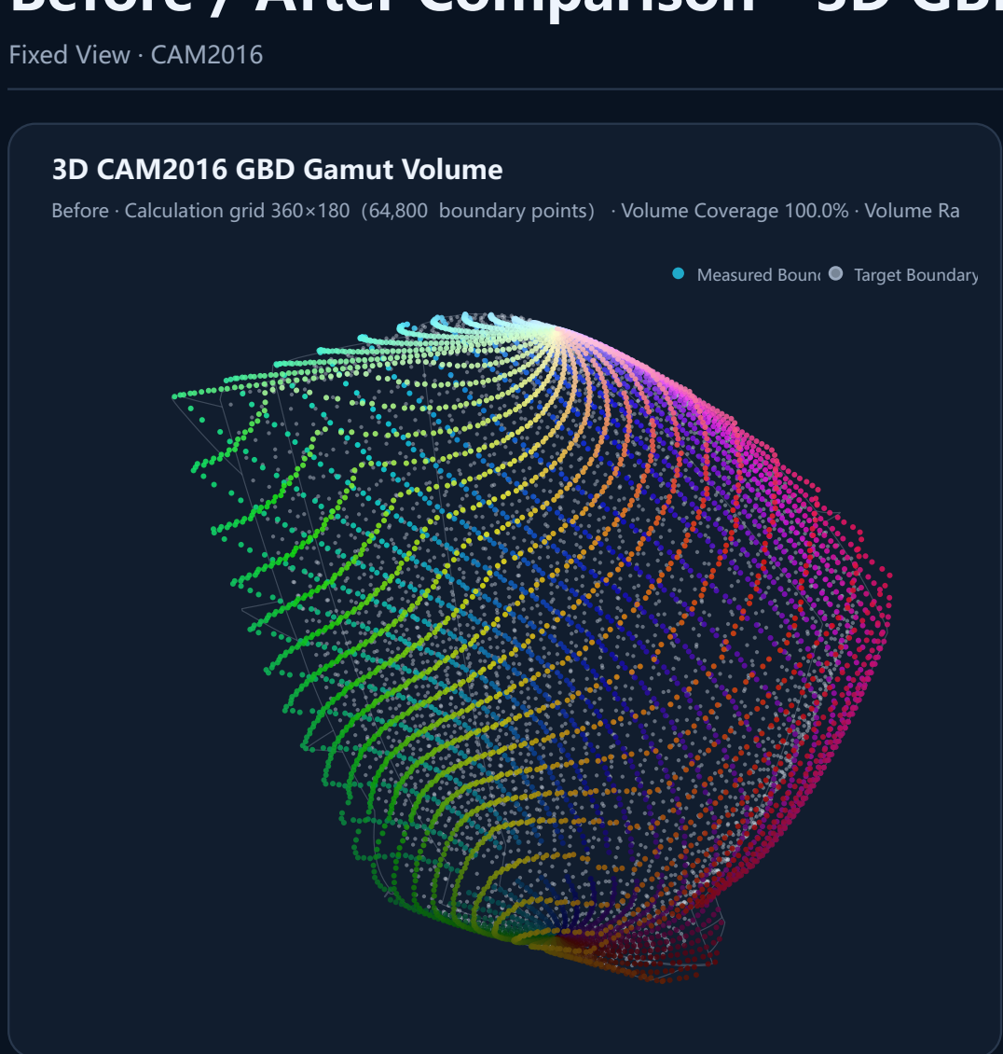
Report Scope

Pre-calibration Characterization / Post-calibration Verification • 1D+3D • Disabled

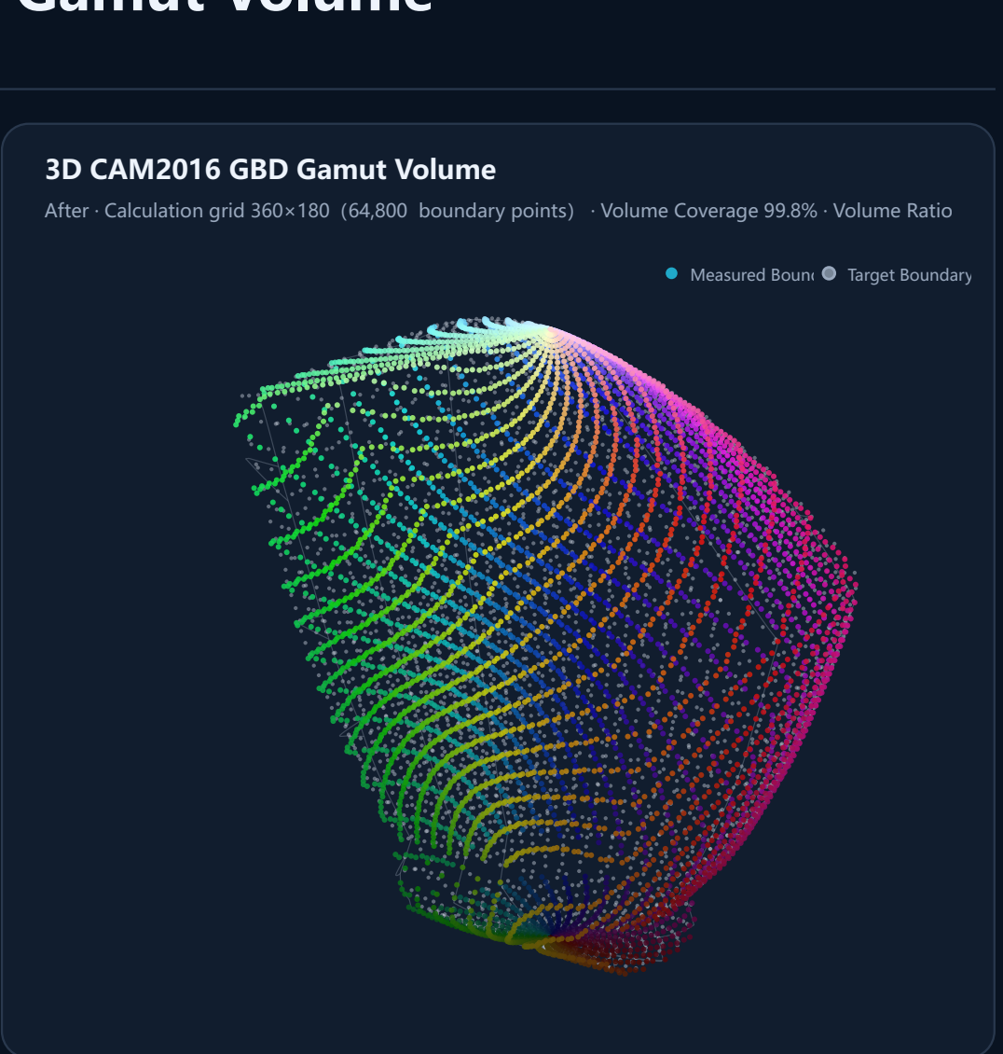
02 / 3D GBD

Before / After Comparison • 3D GBD Gamut Volume

Fixed View · CAM2016


3D CAM2016 GBD Gamut Volume

Before · Calculation grid 360×180 (64,800 boundary points) · Volume Coverage 100.0% · Volume Ra


3D CAM2016 GBD Gamut Volume

After · Calculation grid 360×180 (64,800 boundary points) · Volume Coverage 99.8% · Volume Ratio

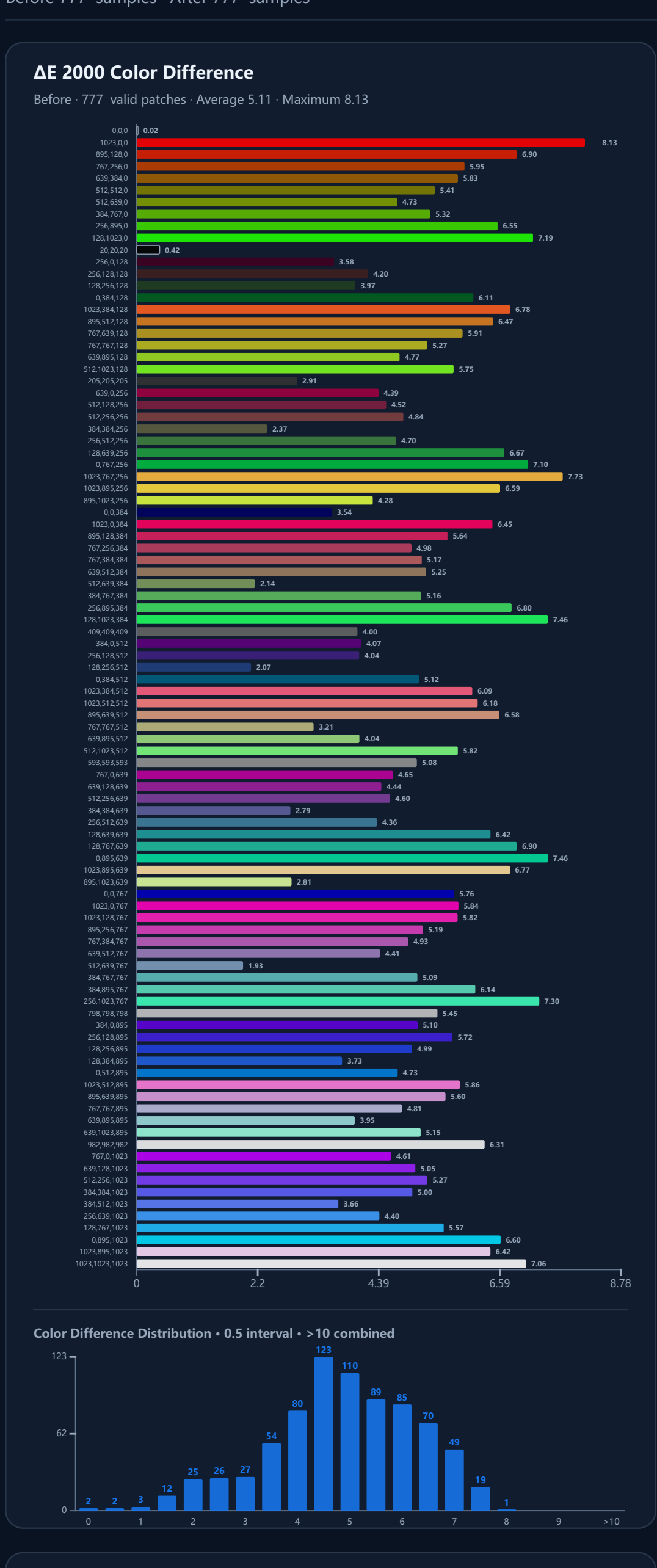
GBD Boundary Sampling Notes

Uniformly sampled GBD including display nonlinearities for accurate, physically representative volume.

03 / Before / After Comparison

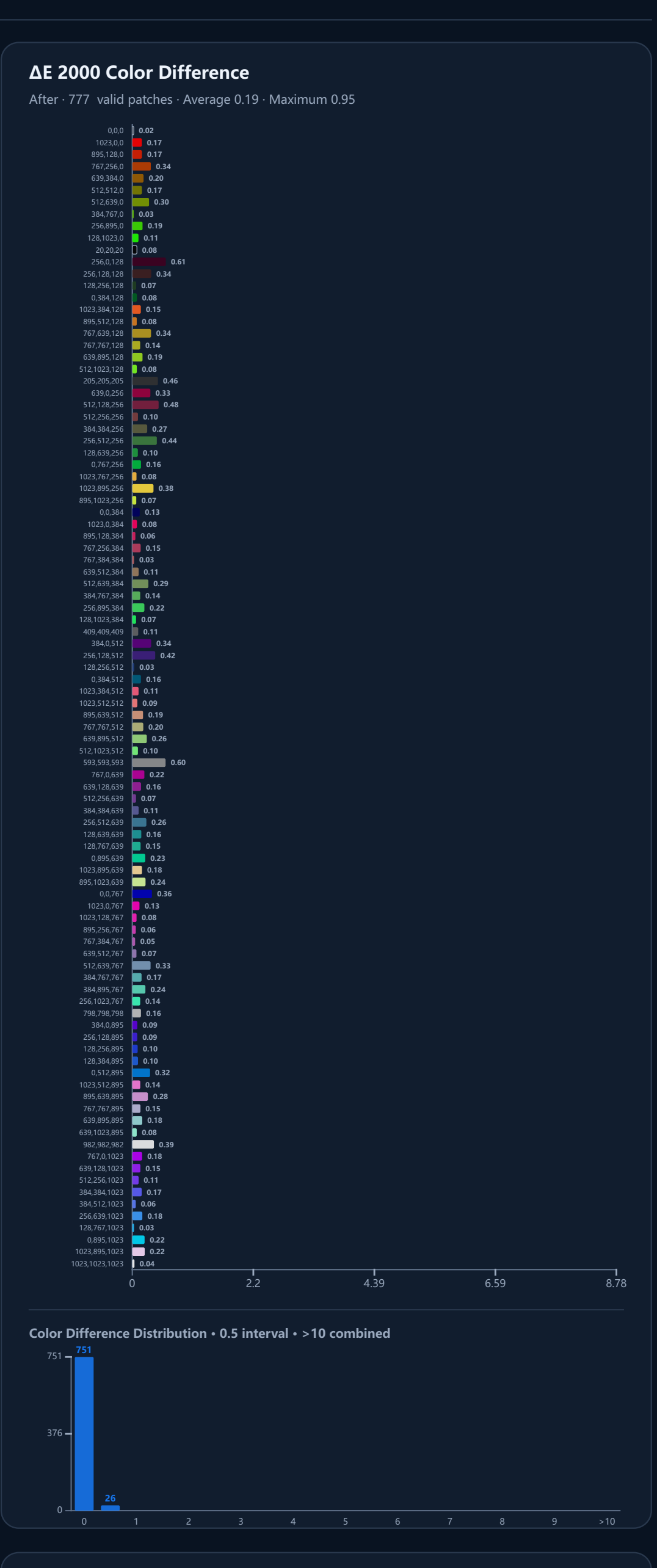
Before / After Comparison • Color Accuracy

Before 777 samples · After 777 samples


ΔE 2000 Color Difference

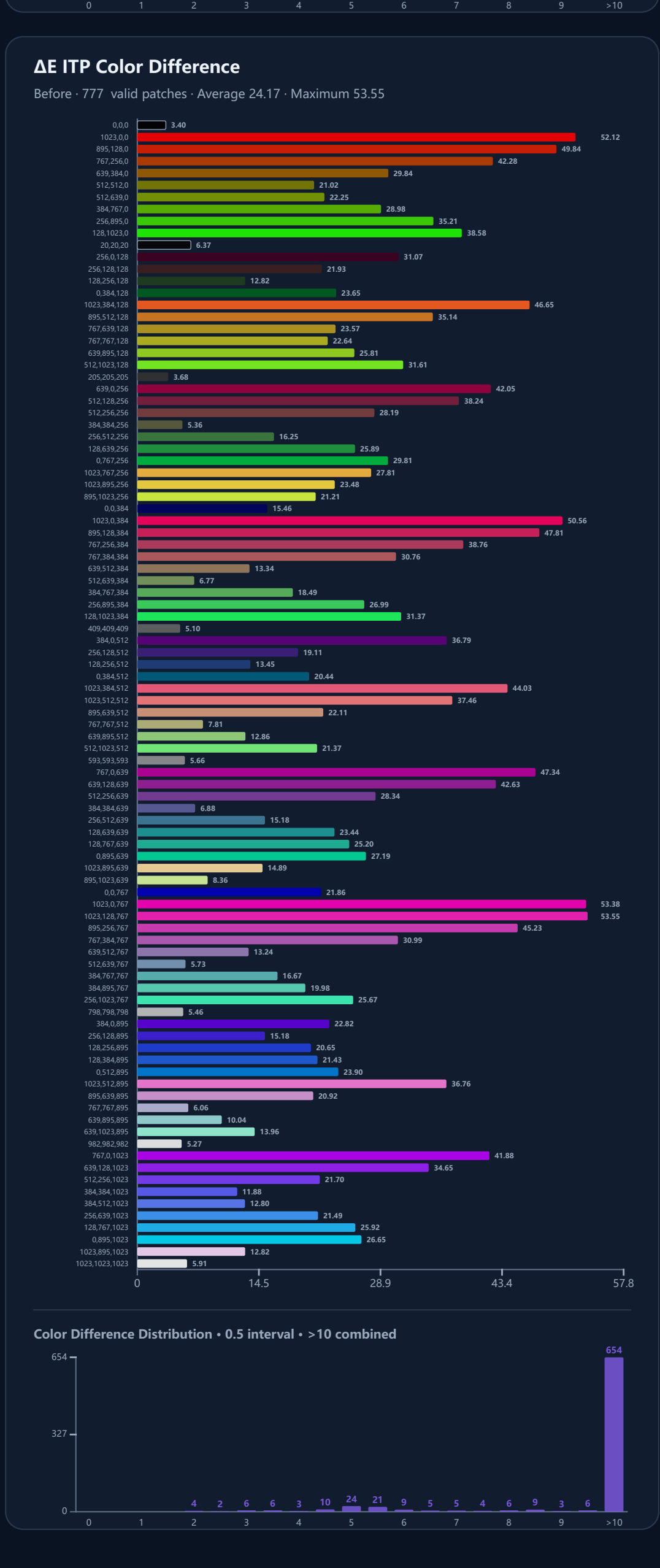
Before · 777 valid patches · Average 5.11 · Maximum 8.13

Color Difference Distribution • 0.5 interval • >10 combined


ΔE 2000 Color Difference

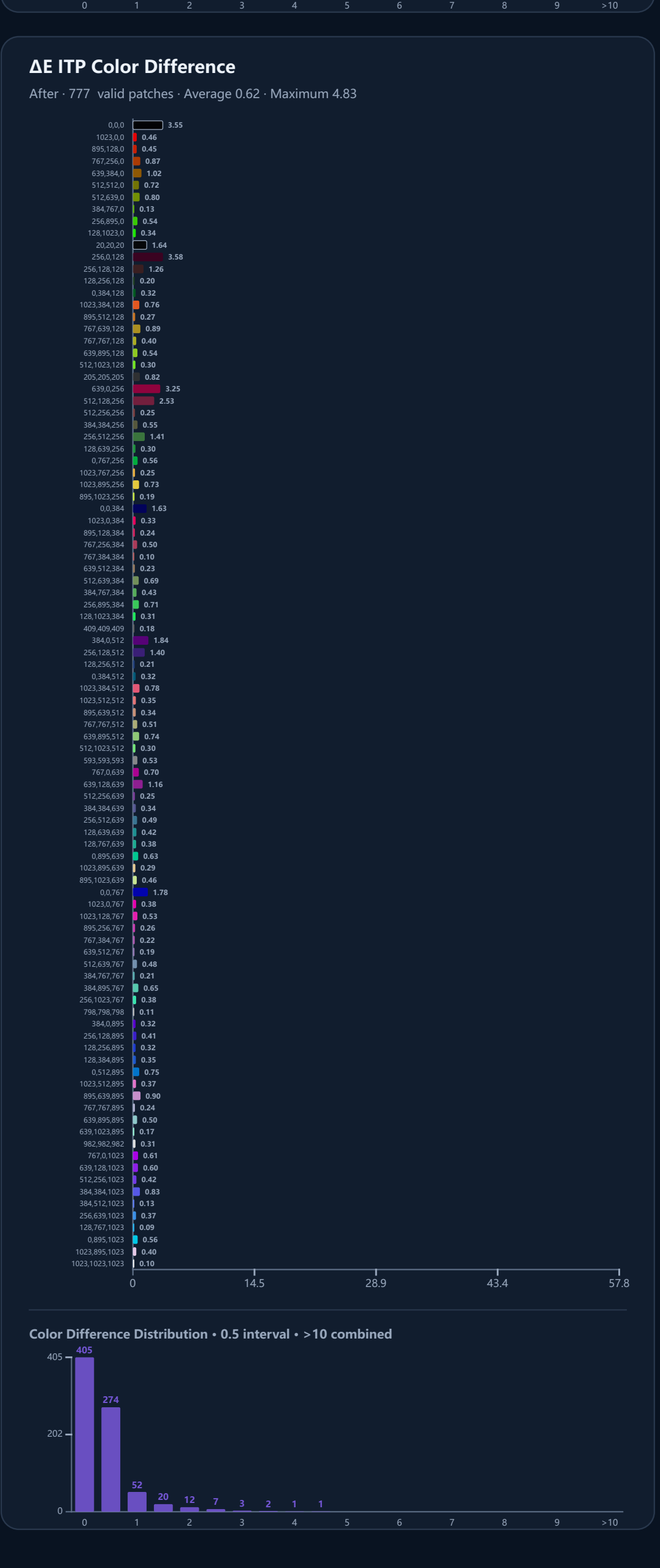
After · 777 valid patches · Average 0.19 · Maximum 0.95

Color Difference Distribution • 0.5 interval • >10 combined


ΔE ITP Color Difference

Before · 777 valid patches · Average 24.17 · Maximum 53.55

Color Difference Distribution • 0.5 interval • >10 combined


ΔE ITP Color Difference

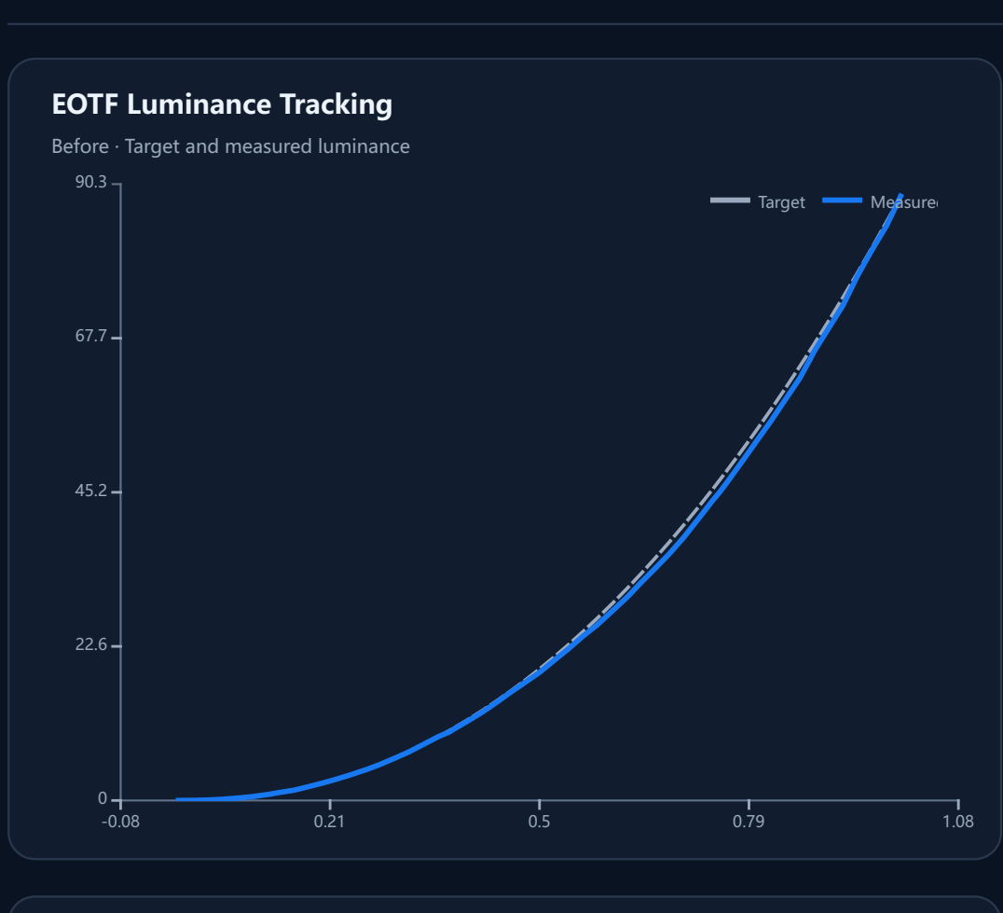
After · 777 valid patches · Average 0.62 · Maximum 4.83

Color Difference Distribution • 0.5 interval • >10 combined

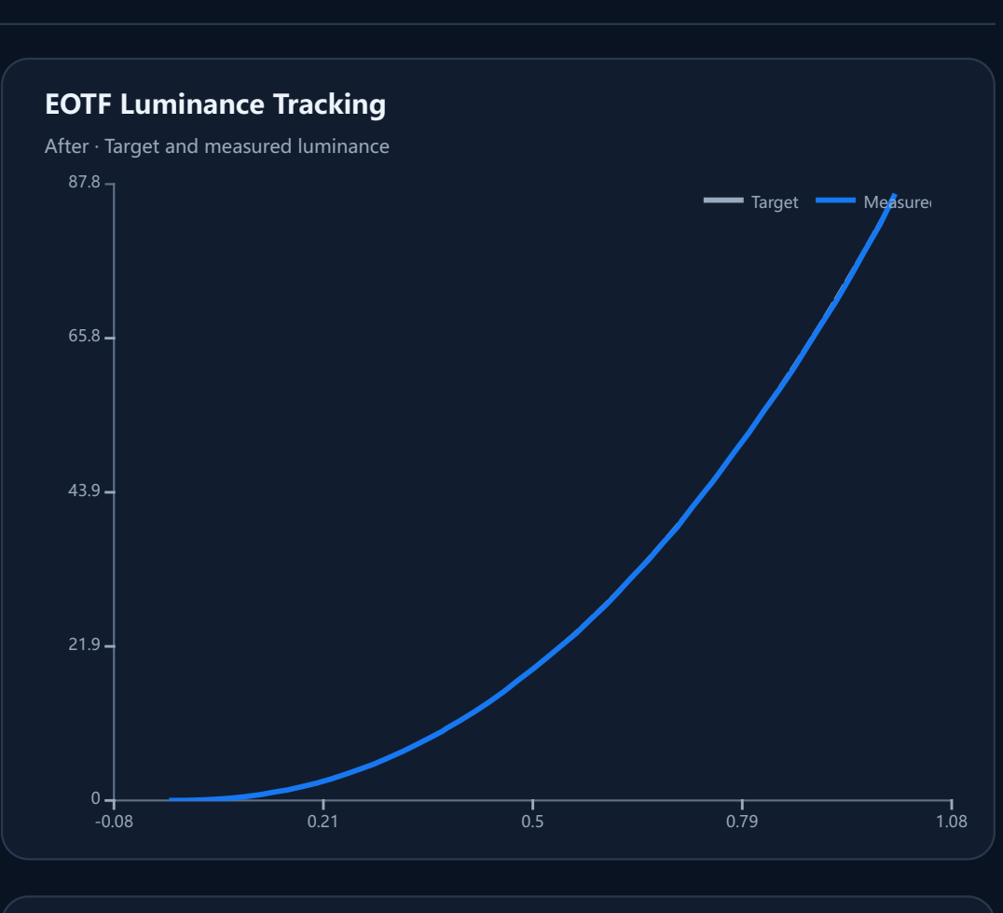
03 / Before / After Comparison

Before / After Comparison • Tone Response and Grayscale

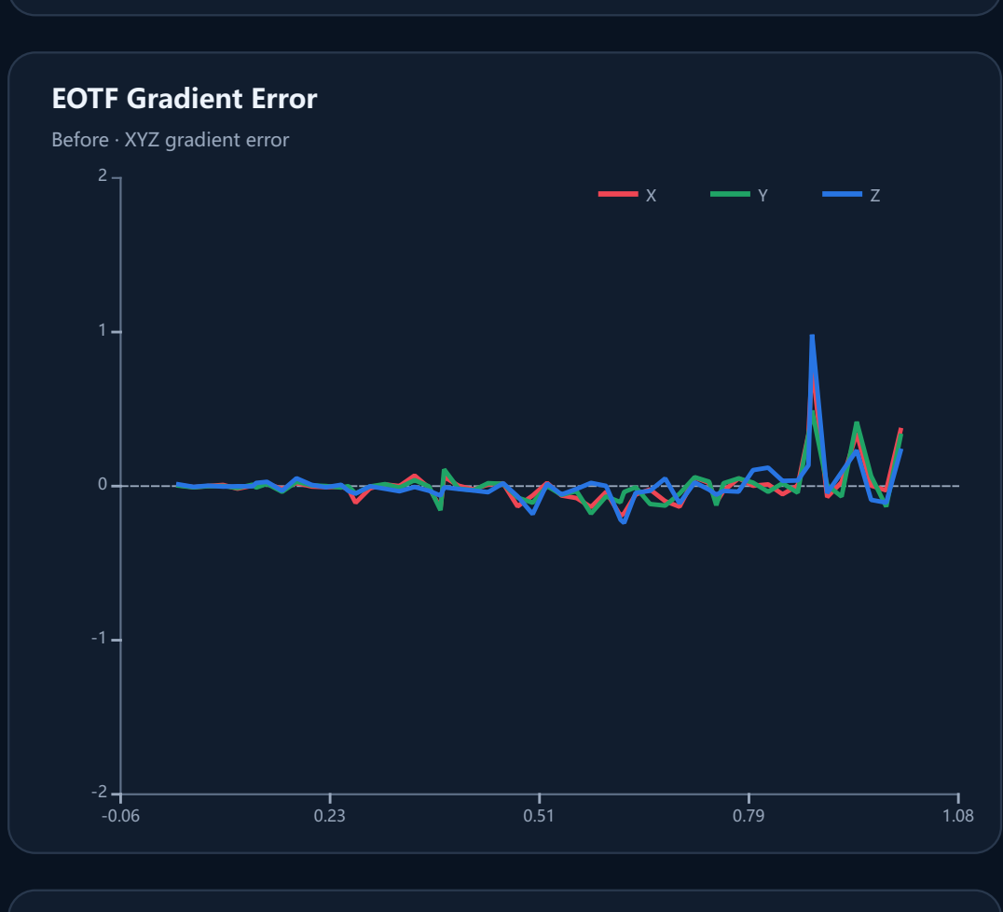
Power 2.20


EOTF Luminance Tracking

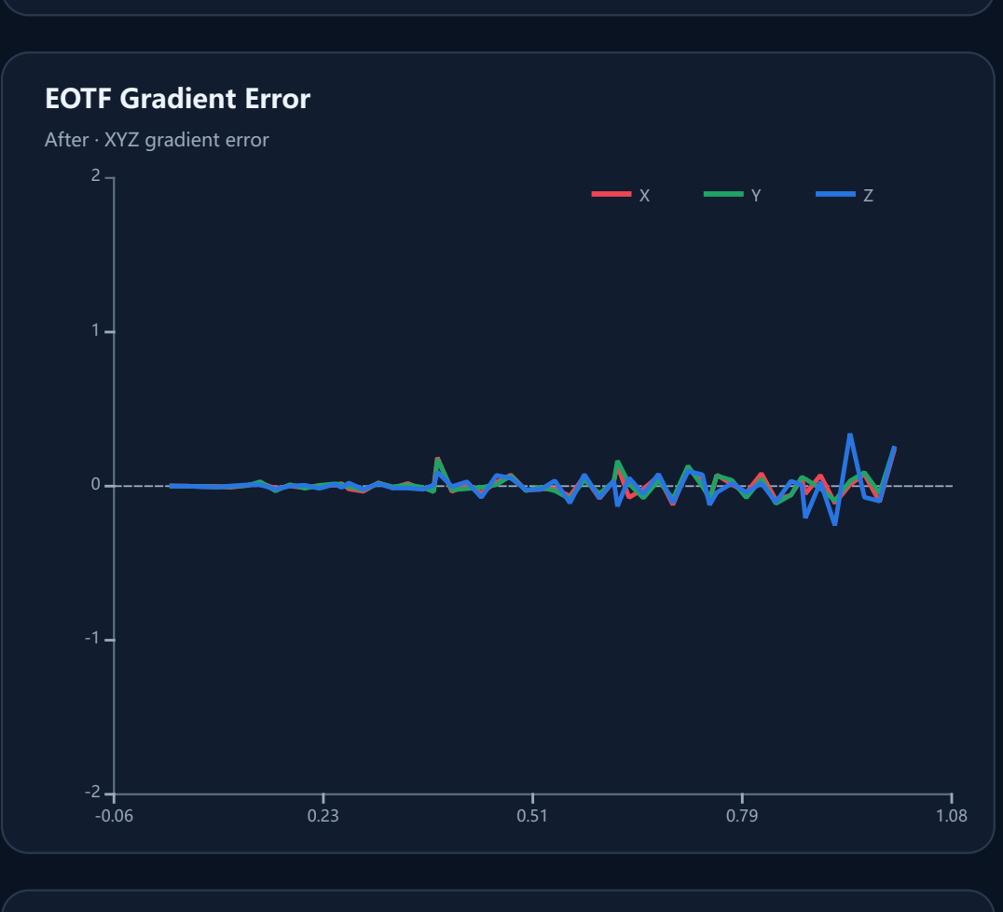
Before · Target and measured luminance


EOTF Luminance Tracking

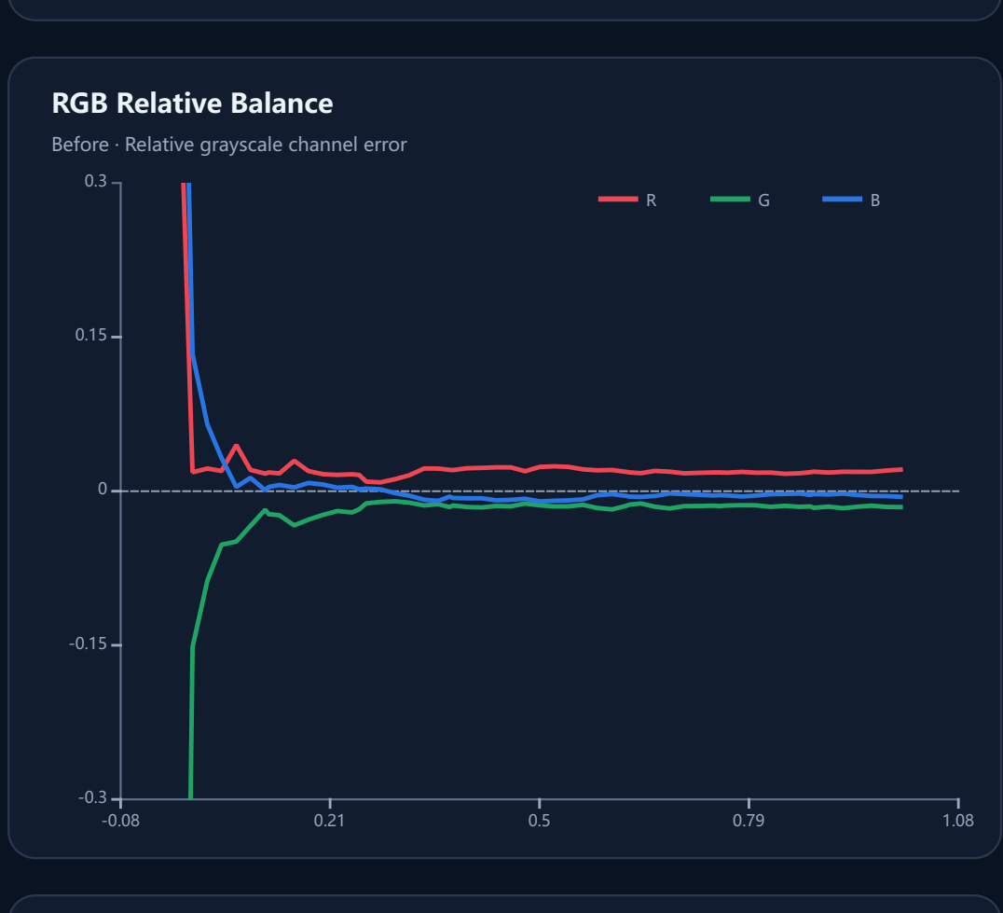
After · Target and measured luminance


EOTF Gradient Error

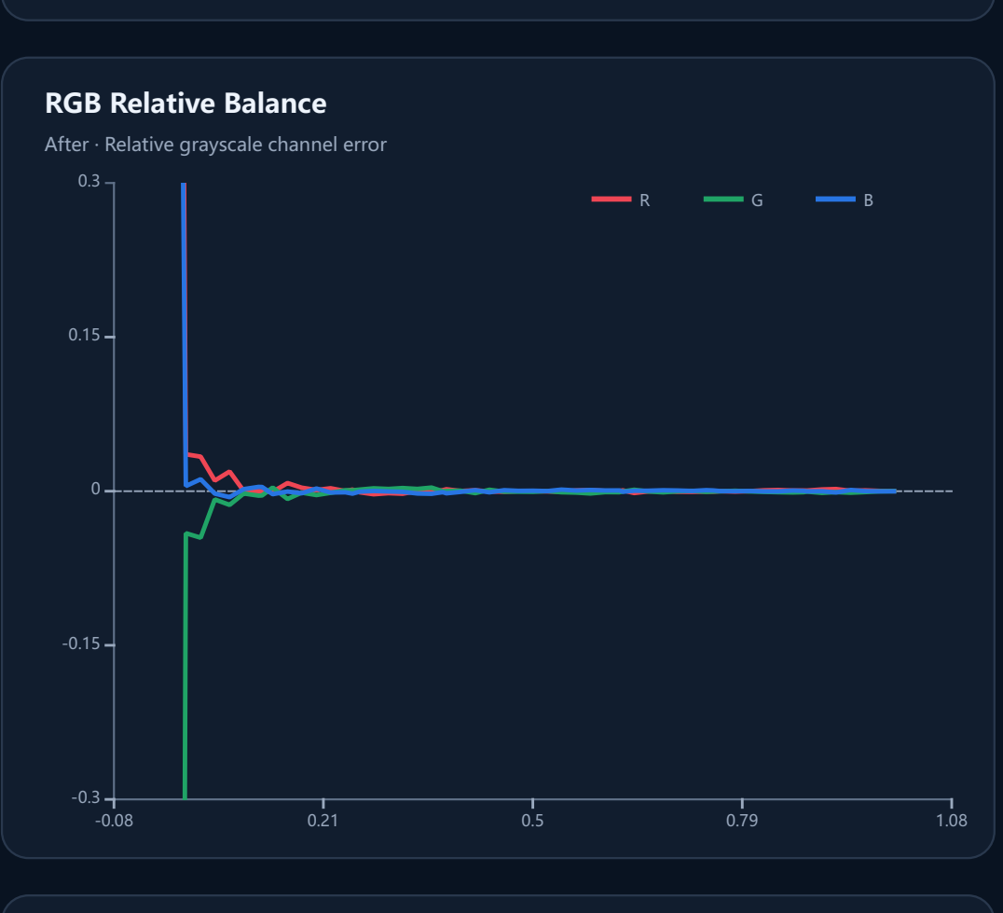
Before · XYZ gradient error


EOTF Gradient Error

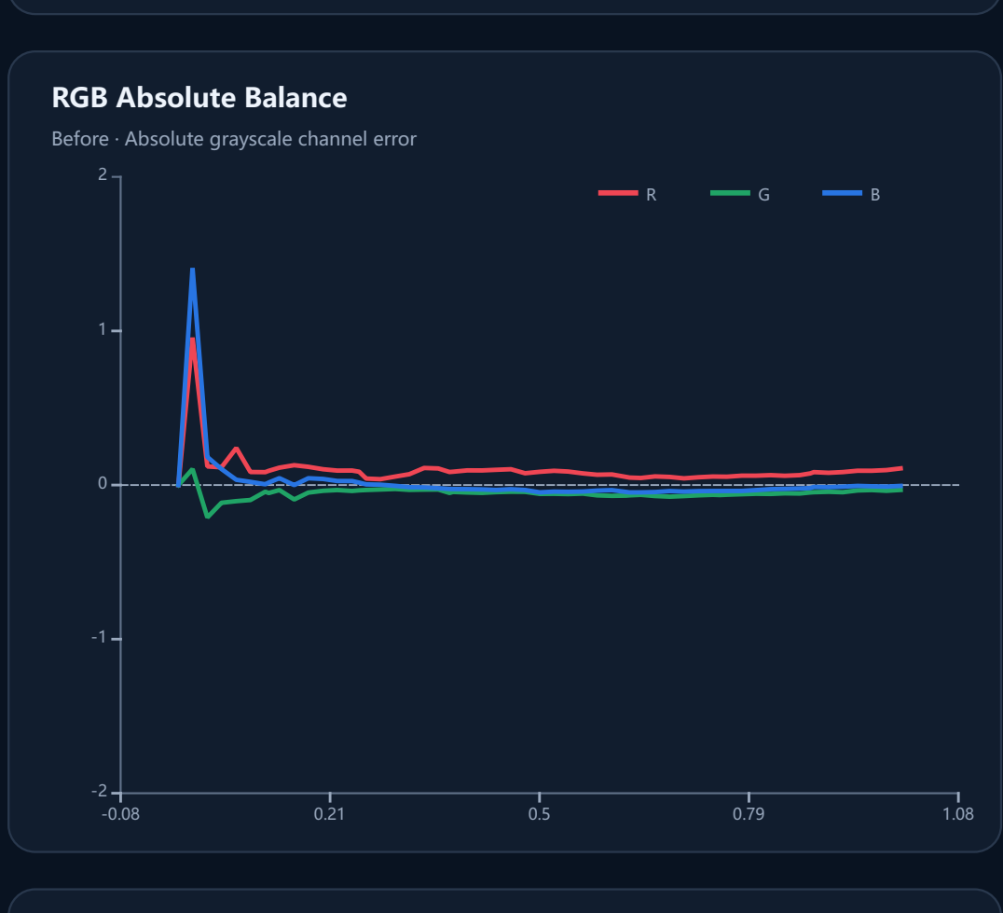
After · XYZ gradient error


RGB Relative Balance

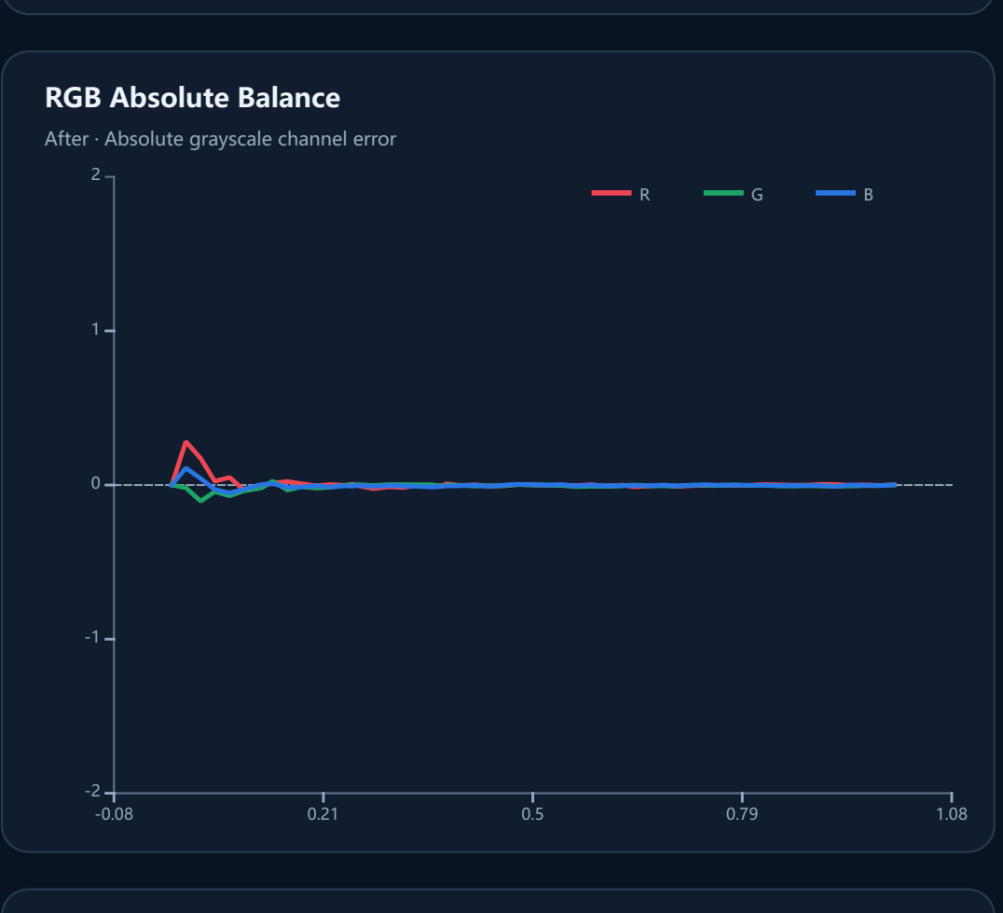
Before · Relative grayscale channel error


RGB Relative Balance

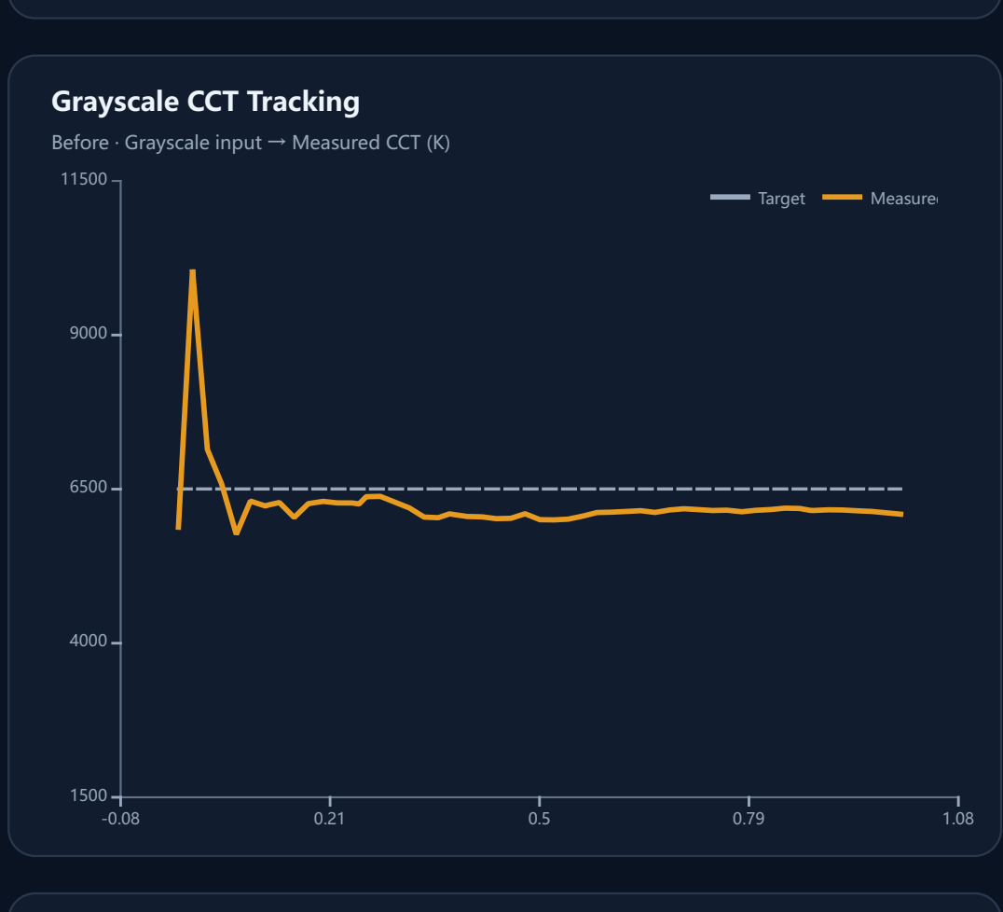
After · Relative grayscale channel error


RGB Absolute Balance

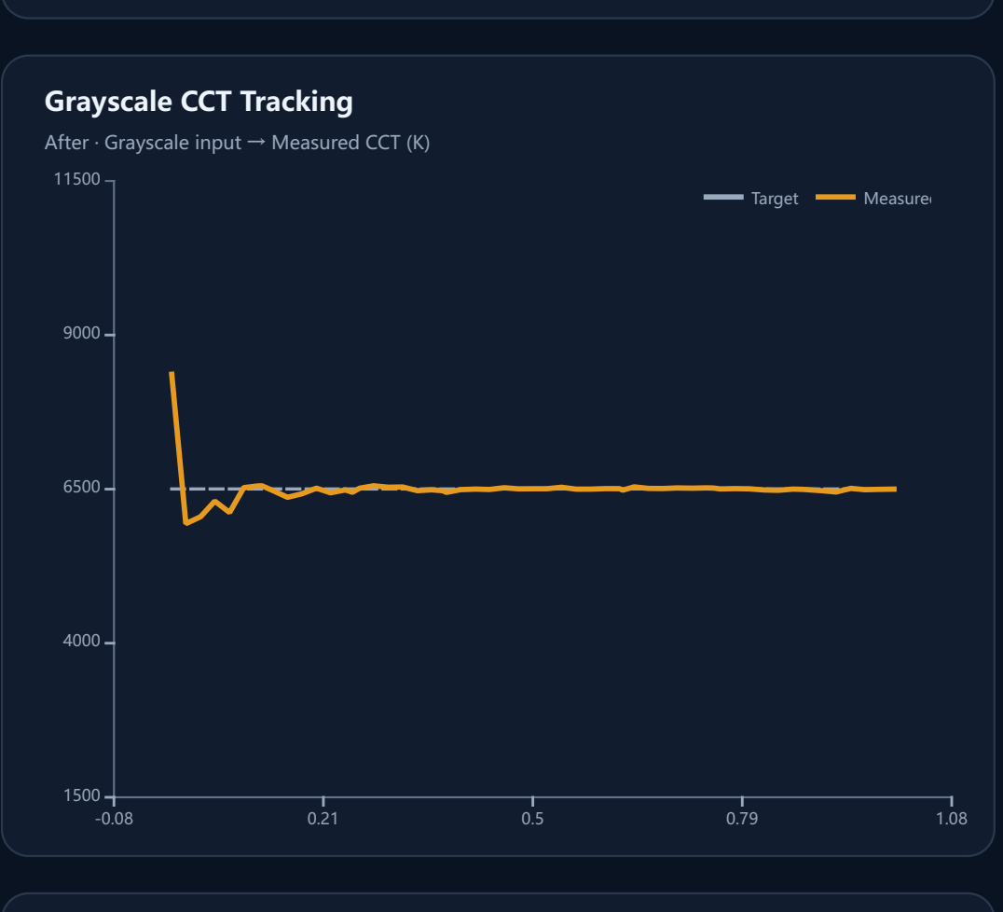
Before · Absolute grayscale channel error


RGB Absolute Balance

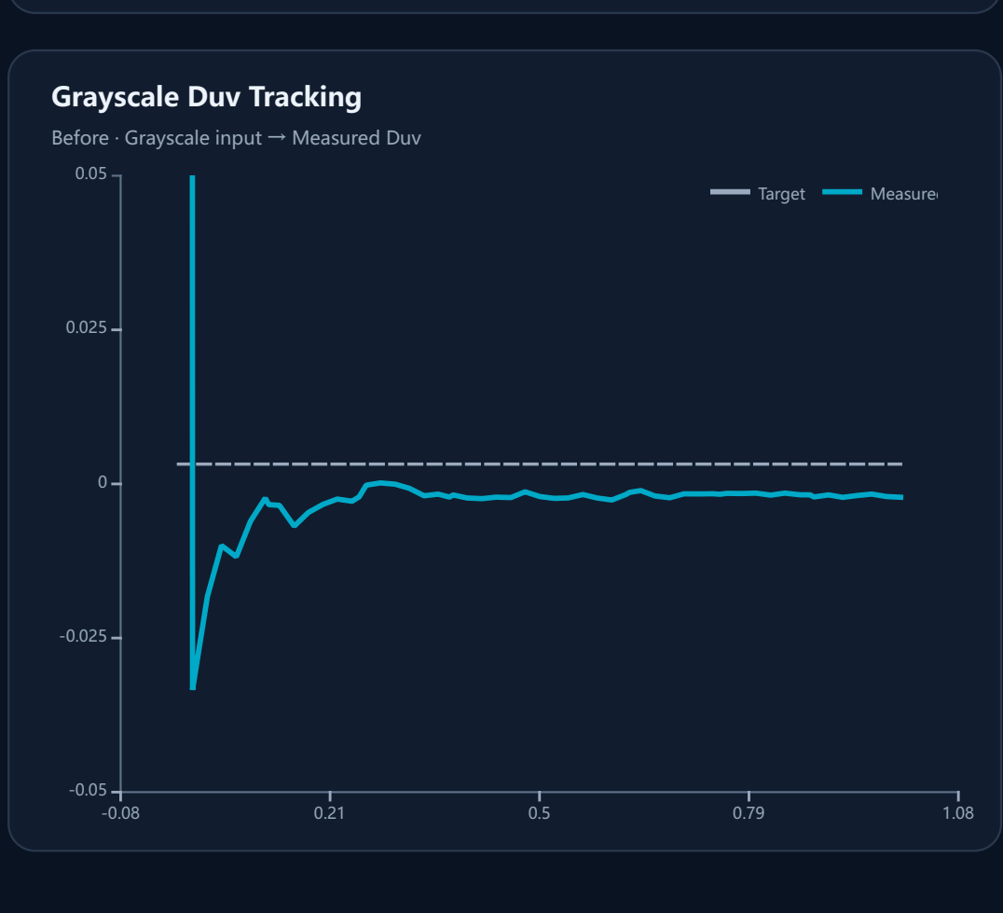
After · Absolute grayscale channel error


Grayscale CCT Tracking

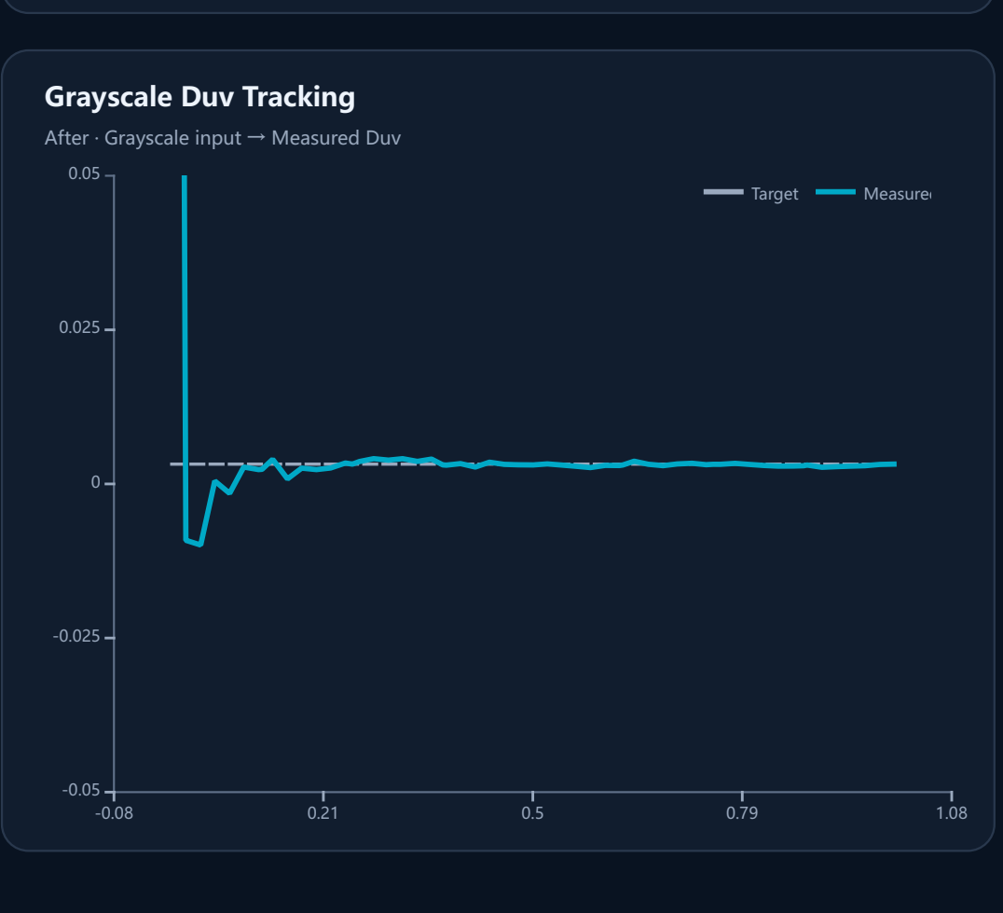
Before · Grayscale input → Measured CCT (K)


Grayscale CCT Tracking

After · Grayscale input → Measured CCT (K)


Grayscale Duv Tracking

Before · Grayscale input → Measured Duv

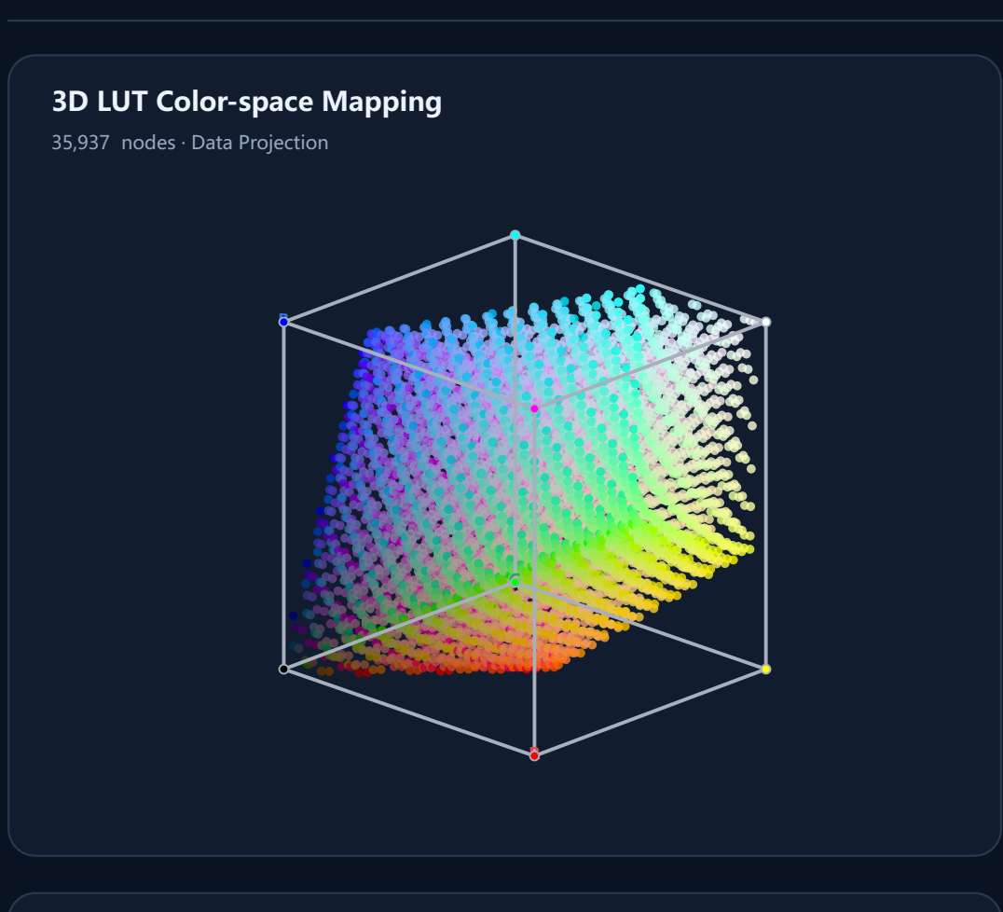

Grayscale Duv Tracking

After · Grayscale input → Measured Duv

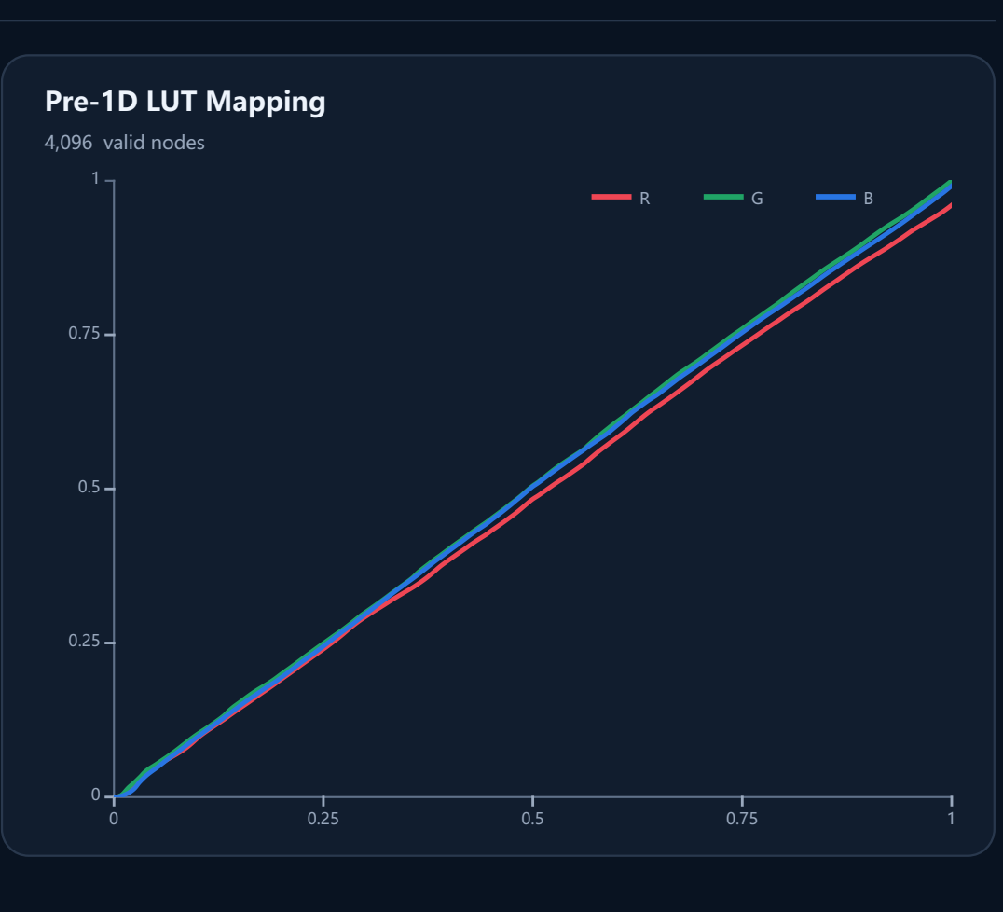
04 / LUT Pipeline

1D+3D Pipeline Mapping

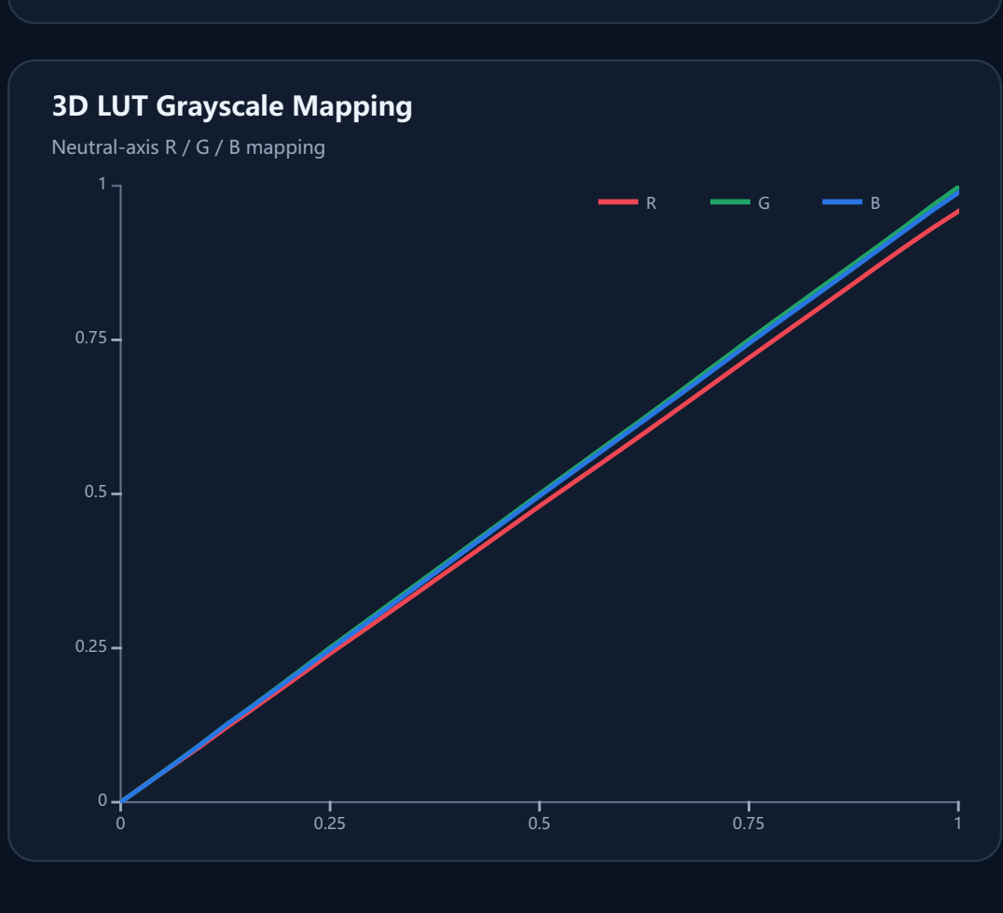
Pre 1D+3D


3D LUT Color-space Mapping

35,937 nodes · Data Projection


Pre-1D LUT Mapping

4,096 valid nodes

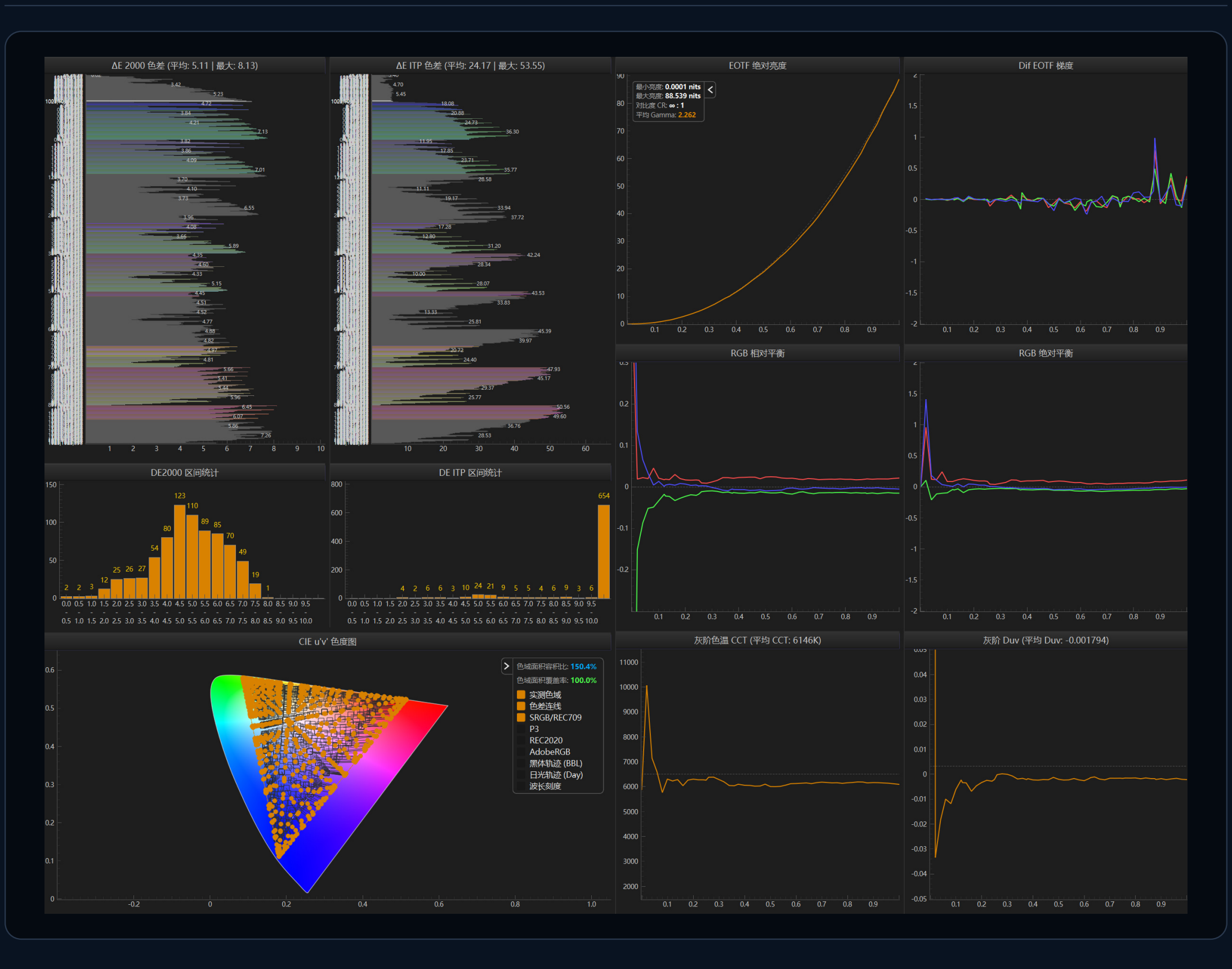

3D LUT Grayscale Mapping

Neutral-axis R / G / B mapping

Appendix / UI Evidence

Appendix A • Characterization UI

Original UI capture


ΔE 2000 色差 (平均: 5.11 | 最大: 8.13)

ΔE ITP 色差 (平均: 24.17 | 最大: 53.55)

EOTF 绝对亮度

最小亮度: 0.0001 nits
最大亮度: 88.539 nits
对比度 CR: ∞ : 1
平均 Gamma: 2.262

Dif EOTF 梯度

RGB 相对平衡

RGB 绝对平衡

DE2000 区间统计

DE ITP 区间统计

CIE u'v' 色度图

色域面积容积比: 150.4%
色域面积覆盖率: 100.0%

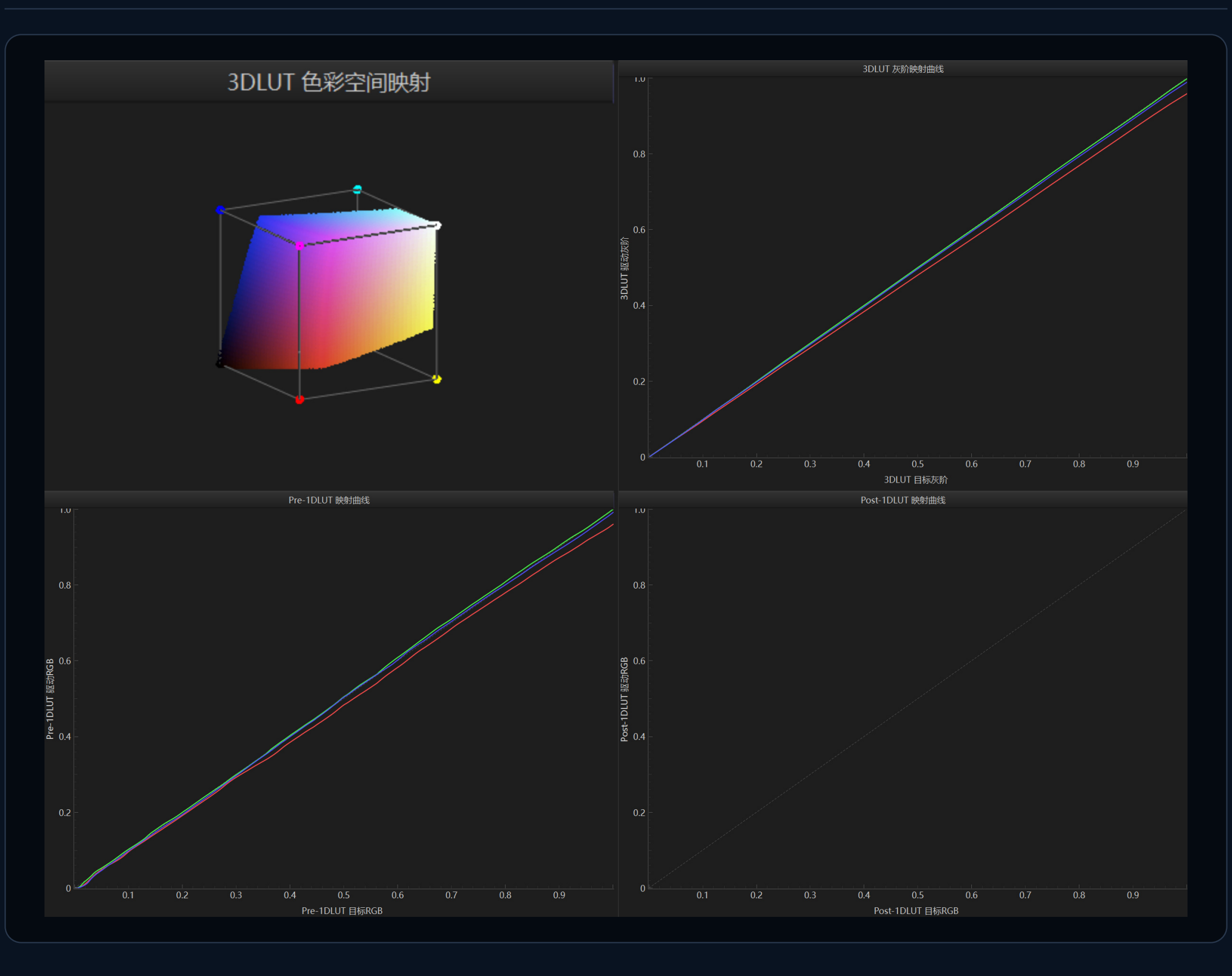
灰阶色温 CCT (平均 CCT: 6146K)

灰阶 Duv (平均 Duv: -0.001794)

Appendix / UI Evidence

Appendix B • Calibration UI

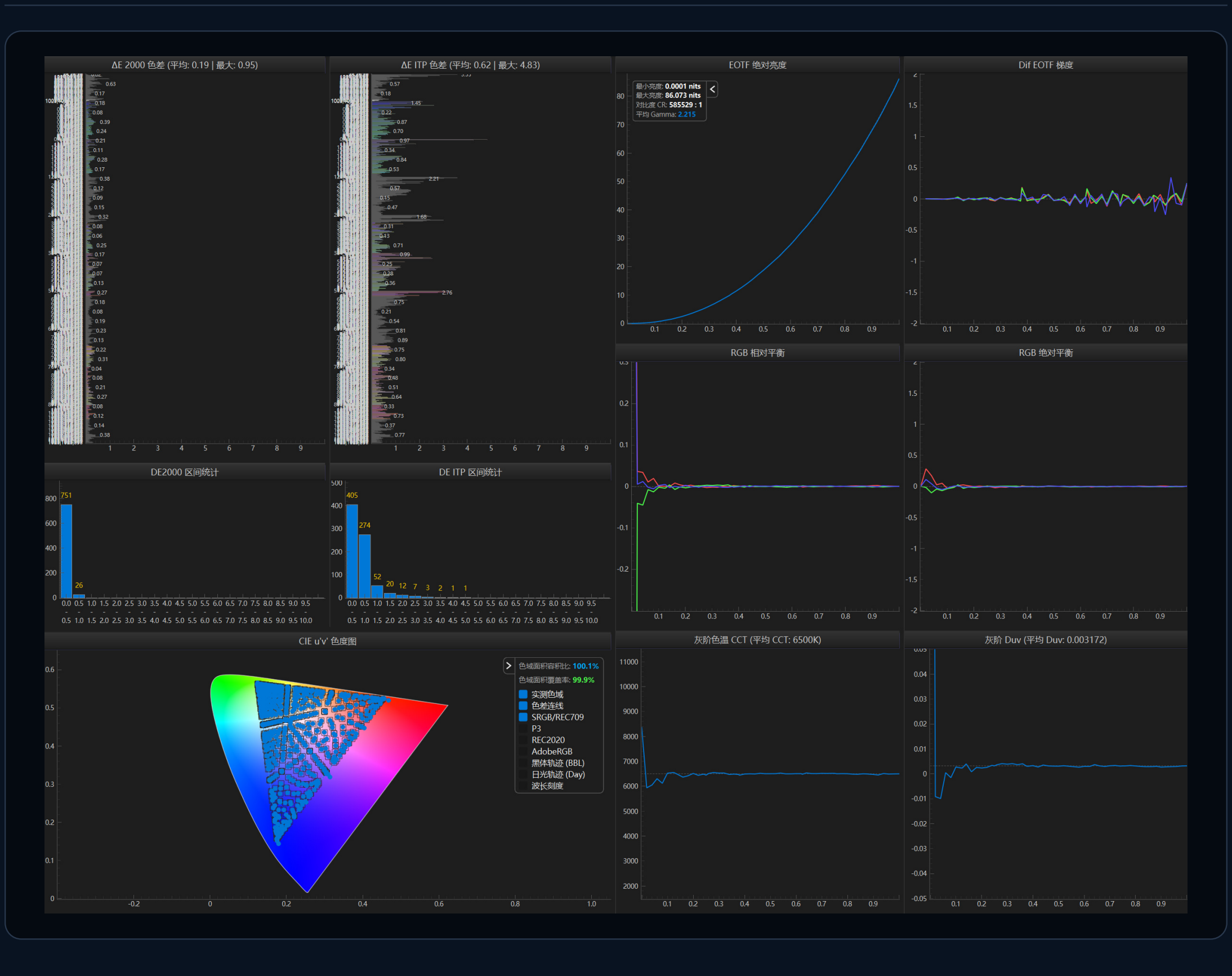
Original UI capture



Appendix / UI Evidence

Appendix C • Verification UI

Original UI capture


ΔE 2000 色差 (平均: 0.19 | 最大: 0.95)

ΔE ITP 色差 (平均: 0.62 | 最大: 4.83)

EOTF 绝对亮度

最小亮度: 0.0001 nits
最大亮度: 86.073 nits
对比度 CR: 585529 : 1
平均 Gamma: 2.215

Dif EOTF 梯度

RGB 相对平衡

RGB 绝对平衡

DE2000 区间统计

DE ITP 区间统计

CIE u'v' 色度图

色域面积容积比: 100.1%
色域面积覆盖率: 99.9%

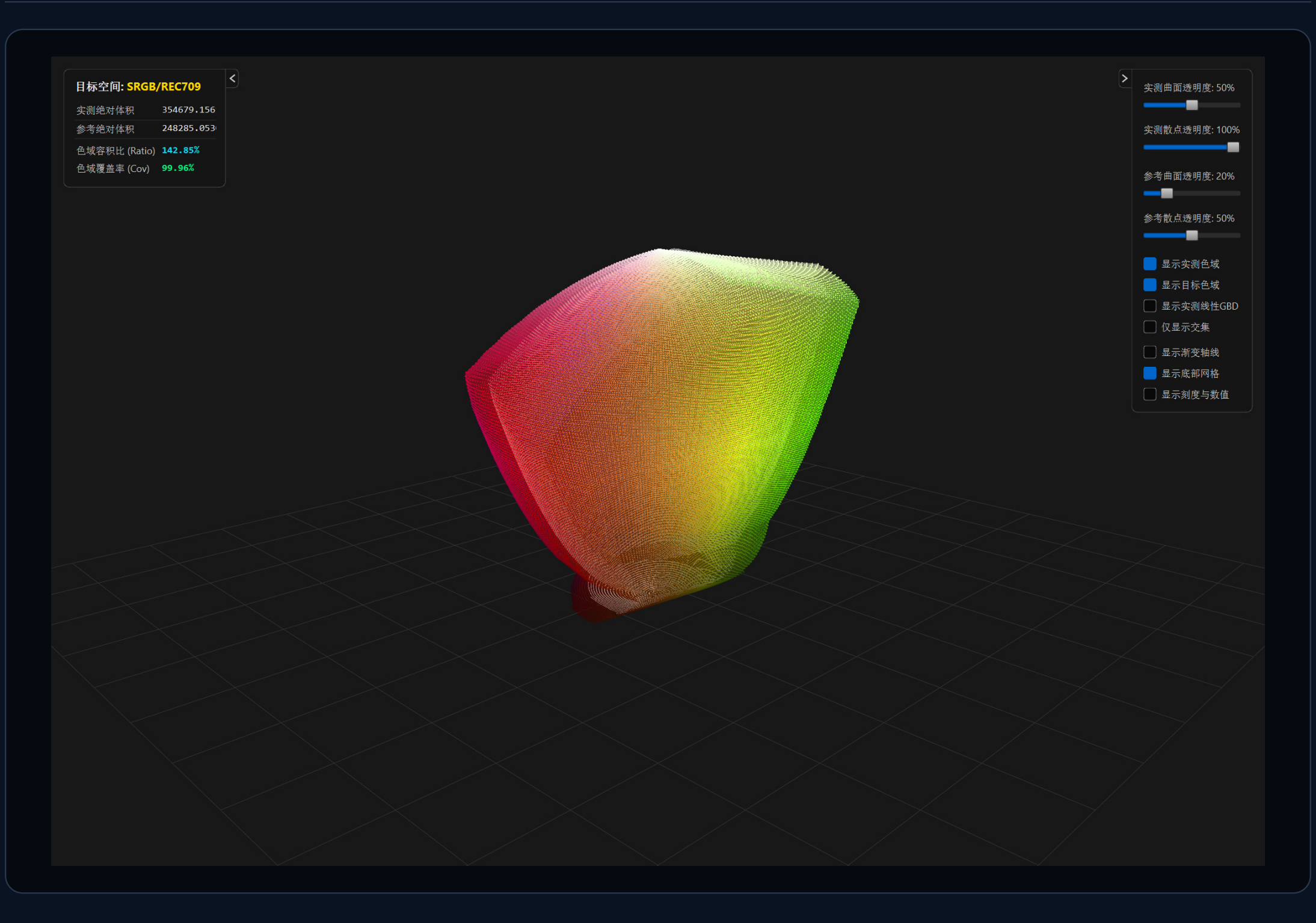
灰阶色温 CCT (平均 CCT: 6500K)

灰阶 Duv (平均 Duv: 0.003172)

Appendix / UI Evidence

Appendix D • Characterization 3D Gamut

3D GBD View Capture


目标空间: SRGB/REC709
实测绝对体积 354679.156
参考绝对体积 248285.053
色域容积比 (Ratio) 142.85%
色域覆盖率 (Cov) 99.96%

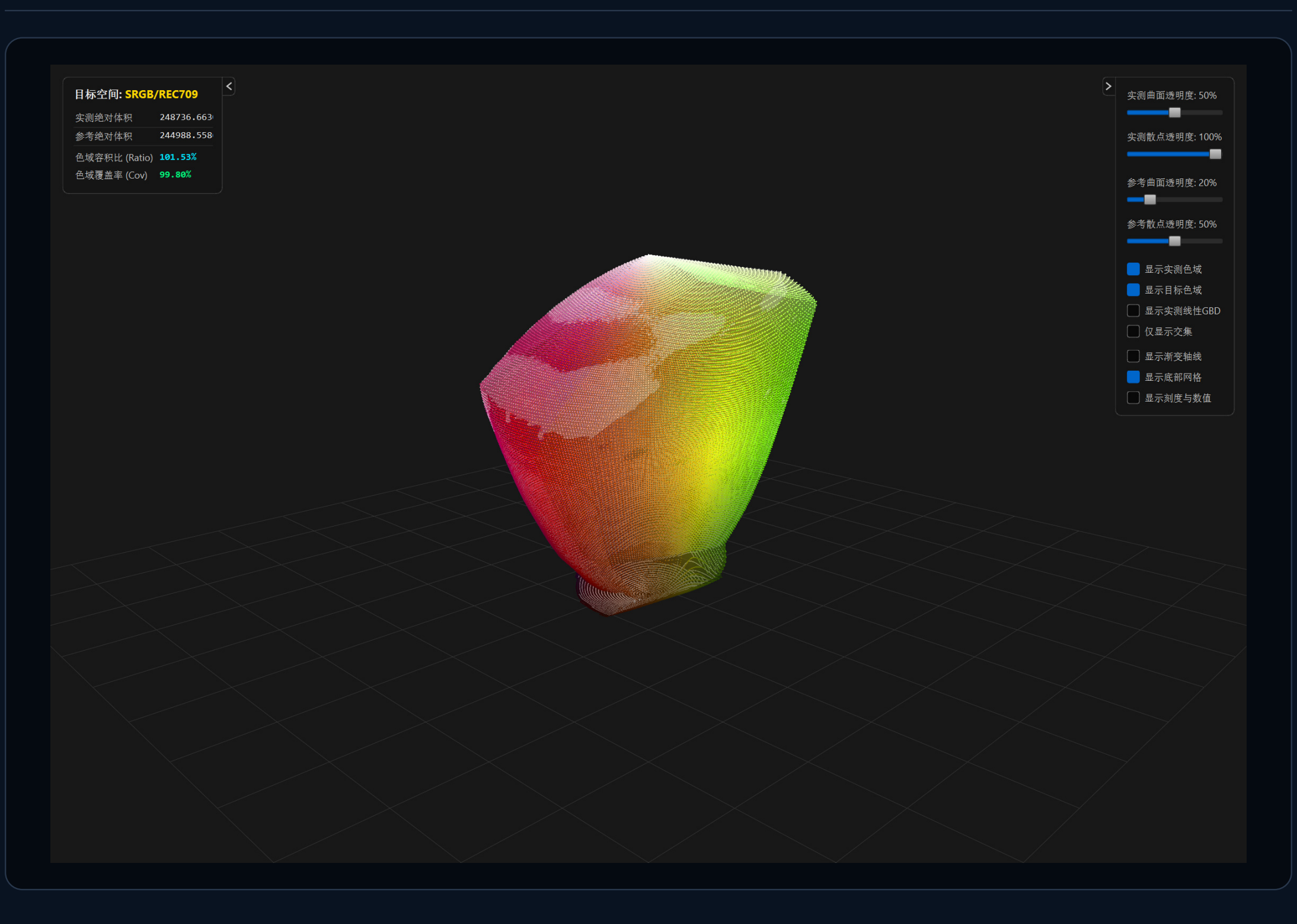
实测曲面透明度: 50%
实测散点透明度: 100%
参考曲面透明度: 20%
参考散点透明度: 50%

☑ 显示实测色域
☑ 显示目标色域
☐ 显示实测线性GBD
☐ 仅显示交集
☐ 显示渐变轴线
☑ 显示底部网格
☐ 显示刻度与数值

Appendix / UI Evidence

Appendix E • Verification 3D Gamut

3D GBD View Capture


目标空间: SRGB/REC709
实测绝对体积 248736.663
参考绝对体积 244988.558
色域容积比 (Ratio) 101.53%
色域覆盖率 (Cov) 99.80%

实测曲面透明度: 50%
实测散点透明度: 100%
参考曲面透明度: 20%
参考散点透明度: 50%

☑ 显示实测色域
☑ 显示目标色域
☐ 显示实测线性GBD
☐ 仅显示交集
☐ 显示渐变轴线
☑ 显示底部网格
☐ 显示刻度与数值

END

DeepCal Professional Calibration Report

DeepCal Advanced Color Science Engine