



CalMAN 5

Introduction

Simulated Meter
LCD Direct View

Source

Direct Display Control

Workflow Description

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Welcome to the HT Enthusiast Extended Workflow

Featuring ...

- ▶ Home layout outlines the workflow structure with full access
- ▶ Comprehensive notes management
- ▶ Integrated session setup and hardware configuration layout
- ▶ Single layout takes all desired Pre- or Post-calibration readings
- ▶ Expanded Multi-Point Grayscale calibration and pre/post-cal chart & datagrid layouts
- ▶ Detailed Saturation Sweep calibration and pre/post-cal chart & datagrid layouts
- ▶ Detailed Gamut Luminance calibration and pre/post-cal chart & datagrid layouts
- ▶ Detailed Color Check calibration and pre/post-cal chart & datagrid layouts
- ▶ 3D Color Cube LUT calibration chart & datagrid layouts
- ▶ High-count calibration points friendly

Also featuring navigation for the Mouse Lazy ...

- ▶ Navigation bar shows where you are and takes you where you want to go
- ▶ Calibration scheduling function is integrated with the Nav Bar Next/Back buttons
- ▶ Toggle buttons switch between complementary layouts with one click:
 - between the Calibration layouts and their corresponding Datagrid
 - between the Pre-Calibration Readings and Post-Calibration Readings
 - between corresponding Pre-Calibration and Post-Calibration Details
 - between corresponding Post-Calibration Details and Datagrids
 - and more!

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WORKFLOW OVERVIEW

The HT Enthusiast Extended Workflow aims at providing all the possible calibration options in an accessible user-friendly manner.

The workflow is divided into four sections or zones with a corresponding color for the three working zones.

1) Introduction: Provides general information about the workflow and its features, and random access to all layouts

2) Preparation Zone: Enter session and device setup information , take pre-calibration readings for reference, plan the dynamic aspects of the session (contrast, brightness, etc.)

3) Calibration Zone: Contains the calibration layouts with matching datagrids, and the post-calibration readings layout for all views except the 2-Point Grayscale and 3D Color Cube LUT

4) Analysis Zone: Has detailed charts and datagrids for all views in the pre- and post-calibration states (except the 3D Color Cube LUT which feeds off the calibration layout) and a final check layout for dynamic range fine-tuning with a session summary

ACTIVE CALIBRATION VIEWS

• 2-Point Grayscale

• Multi-point Grayscale (tabbed Full-feature, Simple and Minimal)

• Saturation Sweeps, also used for basic CMS calibration

• Gamut Luminance

• Color Checker

• 3D Color Cube LUT (tabbed Full-feature and Minimal)

- Use Simple or Minimal layout tabs for hopefully faster AutoCal.

- All active calibration layouts except 2-Point have corresponding detail datagrid layouts accessible via the dta buttons.

- Use the Slim high-content Color Checker datagrid for faster processing of hundreds of colors.

ANALYSIS CHARTS

Except the 2-Point Grayscale and 3D Color Cube LUT, there are pre-calibration and post-calibration detail chart layouts for each active calibration view.

You can toggle between them by clicking the PreCal or PstCal button in the Nav Bar (they super-impose when the layout switches so just keep clicking to go back and forth). Other buttons in the Nav Bar perform similar toggling duties.

Unlike in the other color views, the CIE chart in the Color Checker pre- and post-calibration chart layouts is a display option accessible by checking the CIE Chart option.

Supplementing the charts are analysis datagrid layouts with both pre- and post-calibration data for each active calibration view. You can access them using the Data buttons with a similar toggle arrangement as the PstCal button.

KEY LAYOUTS

Home - has a layout map for getting the lay of the land and a fully loaded navigation matrix for access to all layouts.

Session Setup - Integrates calibration options, initial settings & notes, and hardware/device configuration.

Pre-Calibration Readings, Post-Calibration Readings - these identically configured layouts are master controls for the pre- and post-calibration states with combined and selective reading of all views. They feed all the detail charts and datagrids. You can toggle between the pre- and post-cal reading layouts, and between a reading layout and its corresponding detail layouts, in the Nav Bar (PreCal and PstCal) and the explicit toolbar buttons.

Final Check - Analyzes and fine-tunes the dynamic range aspect and provides a comprehensive calibration summary.

NAVIGATION BAR

Displays the normal layout sequence with instant access across views and zones

Current Layout Context

Next / Back in workflow sequence and / or buttons for navigation to related layouts

Marks current position in workflow

Other

ScUni

← context navigation →

Datagrid

Other

Gray

Gy-2pt

Satur

C Chk

3D Cb

← context navigation →

Analysis Nav Bar and Next / Back buttons follow current view:

Individual Pre-Cal or Post-Cal charts, or combined Pre- & Post-Cal Datagrids

Datagrid

Pre-Cal

Gray

Gray

Satur

Satur

Lumi

Lumi

C Chk

C Chk

← context navigation →

Post-Cal →

Post-Cal

→

Data from Calibration →

→

Navigation Bar

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Final Check

Normal workflow sequence

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Introduction: Home

12/27/2014 Calibration

HOME

Workflow Layout Structure

– Introduction –

→ Prepare ←

↓ Calibrate ↑

← Analyze →

CalMAN 5

▶ Preparation (PRP)

1 ▶ Session Setup → Screen Uniformity

2 ▶ Pre-Calibration Readings
Feeds Pre-Cal charts #11-14

3 ▶ Dynamic Range Analysis

▶ Calibration (CAL)

4 ▶ 2-Point Grayscale Calibration

5 ▶ Multi-Pt Grayscale Calibration → Datagrid
Full, Simple and Minimal versions

6 ▶ Saturation Sweeps Calibration → Datagrid
For basic CMS Gamut calibration use Saturation Sweeps set to 75% or 100% Only

7 ▶ Gamut Luminance Calibration → Datagrid

8 ▶ Color Checker Calibration → Datagrid (normal & slim)
Use Slim datagrid with high # of colors

9 ▶ 3D Color Cube LUT Calibration → Datagrid
Full and Minimal versions, feeds Detail Charts #15

10 ▶ Post-Calibration Readings
Feeds Post-Cal charts #11-14

▶ Analysis (ANL)

11 ▶ Multi-Pt Grayscale Post-Cal Charts → Pre-Cal Charts → Datagrids

12 ▶ Saturation Sweeps Post-Cal Charts → Pre-Cal Charts → Datagrids

13 ▶ Gamut Luminance Post-Cal Charts → Pre-Cal Charts → Datagrids

14 ▶ Color Checker Post-Cal Charts → Pre-Cal Charts → Datagrids

15 ▶ 3D Color Cube LUT Calibration Detail Charts (2 tabs)

16 ▶ Final Check + Summary – Fine Tune the Dynamic Range

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Datagrid

Other

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Gy-2pt

Gray

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Lumi

C Chk

Cc-Slm

C Chk

3D Cb

Detail

3d Cb

PostCal Read

Analyze

Datagrid

Pre-Cal

Gray

Gray

Satur

Satur

Lumi

Lumi

C Chk

C Chk

C Chk

Post-Cal

3d Cb

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Calibration Description / Goals

Color Notes

Post-Calibration Notes

REF

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CalMAN 5

Session SetupSession Help

12/27/2014 Calibration

Start New Session

Session Info

More Options

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Calibration Description / Goals

Display • PRO-70X5FD

AV Mode ISF Day

Color Temp

Sharpness

Color

Tint

Contrast

Brightness

Backlight

TV Gamma

Cut

Gain

Red

Green

Blue

12/27/2014 Calibration

Start New Session

Session Info

More Options

Luminance Unit

fL

Input Level

Video (16-235)

Stimulus Unit

Percent

DeltaE Formula

dE2000 JNDab

Gamut Coordinates

D65, HD Rec.709

Gamma Formula

ITU BT.1886

Target cd/m2

Black0White100

Target Gamma

1

(C) Hardware Configuration

1 Meter

Find →Configure

CalMAN Simulated Profile : None

Mode

2 Source

Find →Configure

Optical player or standalone generator (manual cont

Optical player or standalone generator

Pattern SizeFull 100%

Triplet Support: FullTriplets

3 Display or Processor

Find →Configure

None

Display Slot

Data Points

DDC

(D) Meter Setup

Position the meter as required for (1) projector or (2) flat panel to insure accurate measurements, (3) taking appropriate readings.

1 Projector

2 Flat Panel

3 Readings

Y Max / Min fL29.19 / 0

CCT 0 / 6503 Target

500

400

300

200

100

0

Screen Uniformity

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Display • PRO-70X5FD

AV Mode ISF Day

Color Temp

Sharpness

Color

Tint

Contrast

Brightness

Backlight

TV Gamma

Cut

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Red

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Luminance Unit

fL

Input Level

Video (16-235)

Stimulus Unit

Percent

DeltaE Formula

dE2000 JNDab

Gamut Coordinates

D65, HD Rec.709

Gamma Formula

ITU BT.1886

Target cd/m2

Black0

White100

Target Gamma

1

(C) Hardware Configuration

1 Meter

Find →

Configure

2 Source

Find →

Configure

3 Display or Processor

Find →

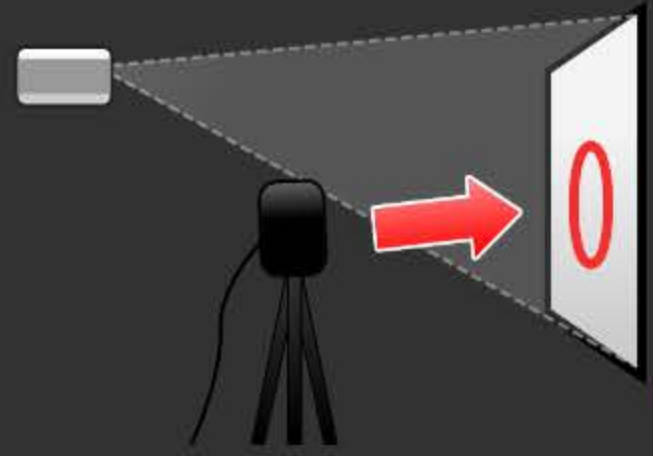
Configure

DDC

(D) Meter Setup

Position the meter as required for (1) projector or (2) flat panel to insure accurate measurements, (3) taking appropriate readings.

1 Projector



Display Controls

Brightness

0

Contrast

80

Color

0

Tint

0

Sharpness

2

Color Temperature

Low

Gamma

0

Backlight

17

Gamut Range

Standard

Motion ENhancement

Off

Precision Color Plus

Active Contrast

Film Mode

Off

Digital Noise Reduction

Off

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Setting Up the Session

(A) Enter the session description & calibration options in the corresponding drop-downs and text boxes

- Click [Session Info] to enter additional information
- Click [More Options] to open the options panel - the red [X] can be used to close it
- Click the checkmark above/below [Big] to expand the note next to it

(B) Enter the initial display settings to use for the calibration in the corresponding boxes - you can provide alternates in the Pre- and Post-Calibration layouts

(C) Find and configure the appropriate (1) meter, (2) source and (3) display devices - more info on right →

(D) Position the meter as required. You can now read the Level 0 (Black) and Level 100 (White) luminance and corresponding CCT based on current settings - more info on right →

(C) Hardware Configuration

- To start calibrating your display/processor, first connect your meter.
 - Click the meter [Find] button and select your meter.
 - Select the Target Display Type.
- Connect to your reference pattern source generator.
 - Click the source [Find] button, and select your Source.
 - Select the pattern window size and resolution.
- Connect to your display/processor.
 - Click the display [Find] button and select your display or processor.
 - Click [DDC] to show the Direct Display Control panel when appropriate
- Click the corresponding [Configure] button for more options.

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(D) Meter Positioning

- For projectors position the meter facing the projection screen, far enough away from the screen to avoid reading the meter's own shadow (see illustration on the left). Continue to take readings.
 - Press the read continuous button to take measurements of a white window while moving the meter up/down/left/right, until the Y Max reading is largest. When Y Max is highest, click *Stop*.
- For flat panels position the meter on the center of the screen (see illustration on the right). You do not need to take readings for this placement.
- You can also read the White level CCT based on the current settings - adjust the display's color temperature to best match the target CCT.

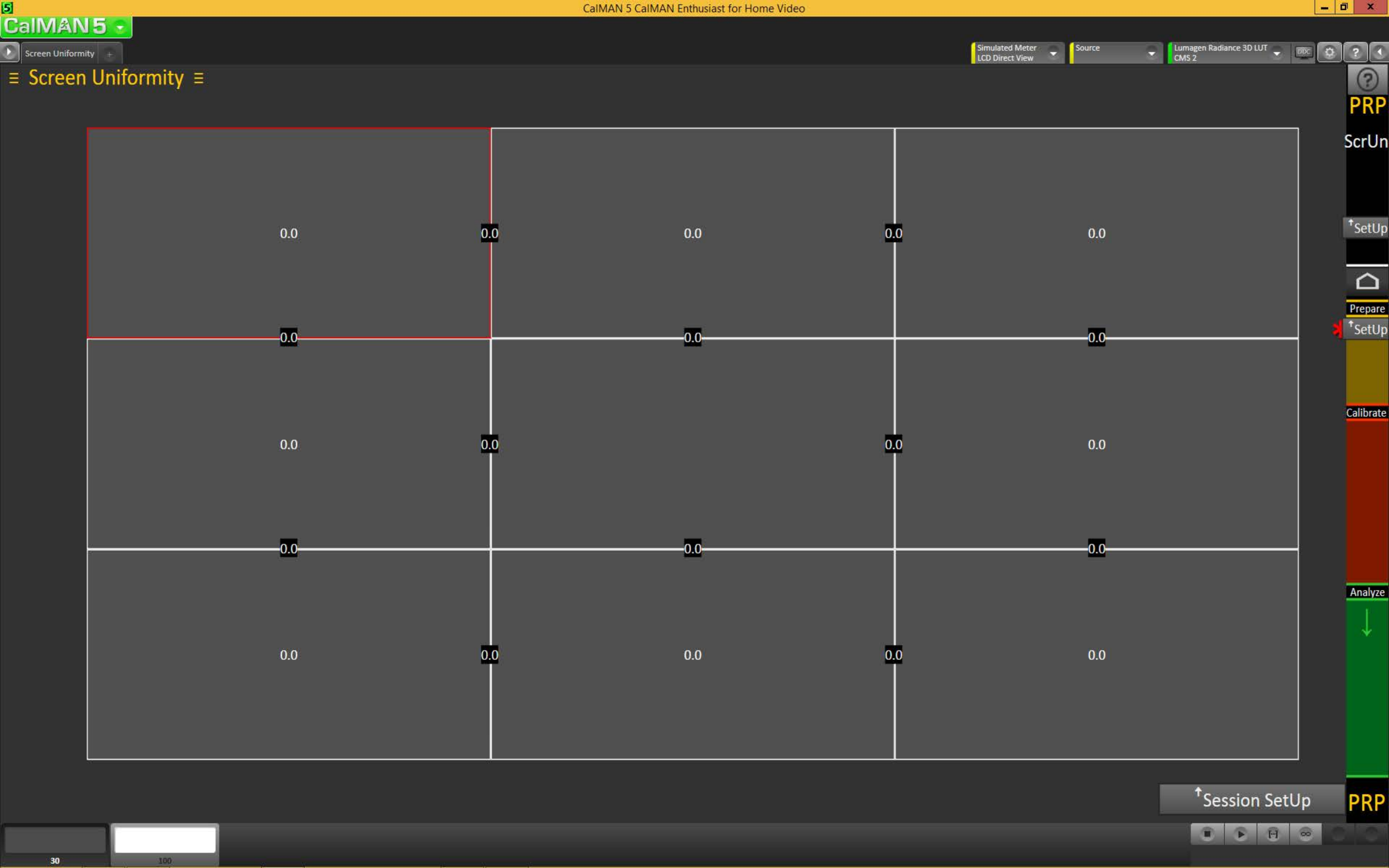
0

100

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Pre-Cal Readings

12/27/2014 Calibration

Gamma Breakout

Tot 2.23

Y Min 0

Y Max 23.8

1 Grayscale

Full Charts

20 Point 5% step 5-100%

100

Avg 2.34

Max 3.8

DeltaE 2.94

4 Color Checker

Full Charts

Add Custom Color Set → SG Fleshtones

DeltaE 0.66

Avg 1.66

Max 3.21

3 Gamut Luminance

Full Charts

4 Point 25% step 25-100%

Avg 1.45

Max 3.88

DeltaE 0.7

2 Saturation Sweeps

Full Charts

25% Sweeps

Avg 0.92

Max 1.95

DeltaE 0.51

100%

100% Blue

100% Yellow

100% Cyan

100% Green

100% Red

Magenta

Red

Blue

Yellow Green

Orange Yellow

Purple

Purplish Blue

Bluish Green

Foliage

Light Skin

Gray 35

Gray 65

Gray 80

White

Select Base Colors

Gray

Satur

Lumi

C Chk

3d Cb

PostCal Read

Analyze

Gray

Satur

Lumi

C Chk

3d Cb

Final Check

PreCal

ISF Day

Pre-Cal Readings

Contrast

Brightness

Backlight

TV Gamma

Color

Tint

Red

Green

Blue

Gain

Cut

Pre-Cal Notes

Big

Display Slot

Use [...] mid-screen or below to read all series or select one from the individual series above

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Dynamic Range

Dynamic Range

Overall Range

Adjust the Backlight control (for LED) to get the desired compromise between black and white levels: less Backlight = deeper black but lower white level, more Backlight = brighter white but higher black level too.

White Level

Data Points: select Clipping or Clipping with Peak White.

1

Adjust the Contrast to maximize the white level without clipping any of the three primaries.

Gamma Level

Data Points: select a full set of grayscale points for this.

2

Check the gamma level across the full grayscale based on the current settings, and adjust the display's gamma control to get a good match, tweaking with the Brightness for Black level & Contrast for White.

23 Point 5% step 0-109%

Calibration Notes

Big

Contrast

Brightness

Backlight

TV Gamma

0

5

10

15

20

25

30

35

40

45

50

55

60

65

70

75

80

85

90

95

100

105

109

Simulated Meter

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Lumagen Radiance 3D LUT

CMS 2

Luminance

1.5

1.4

1.3

1.2

1.1

1

0.9

0.8

0.7

90

91

92

93

94

95

96

97

98

99

100

101

102

103

104

105

106

107

108

109

Luminance in fL

White 23.8

23.8

Gamma

Target 2.4

Total 2.52

2.4

3.5

3

2.5

2

1.5

1

0

10

20

30

40

50

60

70

80

90

100

Display Slot

CMS 2

Click the Read All button [...] to read the Grayscale

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2 Pt Grayscale

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Lumagen Radiance 3D LUT
CMS 2

2-Point Grayscale Calibration

Grayscale 2-Point Adjust

1. Reduce the Red, Green, and/or Blue (RGB) High controls to the lowest measured R, G, or B after the initial measurement of bright grayscale pattern. Continue doing this until you balance RGB to a deltaE of 3 or below (chart below).

2. Balance the RGB Low controls (if provided), while measuring a dark grayscale pattern.

3. Re-measure both bright grayscale and dark grayscale until both RGB High and RGB Low are balanced and DeltaE is under 3.

Selecting Points:

• 30% and 80%: Use these levels if you only have access to a two point grayscale adjustment

• 30% and 100%: Use these levels if you will be completing a multipoint adjustment afterwards and do not have access to a Peak White pattern.

• 30% and Peak White: Use these levels if your display does not clip and you will be completing a multipoint calibration and want the best possible results.

Calibration Notes

30

80

DeltaE 2000

30

1.21

5.09

Max

30

80

30

80

Luminance

30

Yn 0-1

0.05747

Target Yn 0-1

0.05621

Gamma

30

2.38

2.85

Total

30

80

30

80

CC Temp

6408

6502

Avg

Gamma

2.38

2.85

Tot

dE 2000

1.21

3.15

Avg

5.09

Max

White

29.19

Target →

1.64066

0.3127

0.329

Read →

1.67722

0.3147

0.327

2 Point 30,80%

Triplet

82, 82, 82

RGB Balance

30

G 99

B 99.9

R 101.1

30

40

50

60

70

80

CCT

30

6408

6502

Avg

30

80

30

80

0.31

0.32

0.33

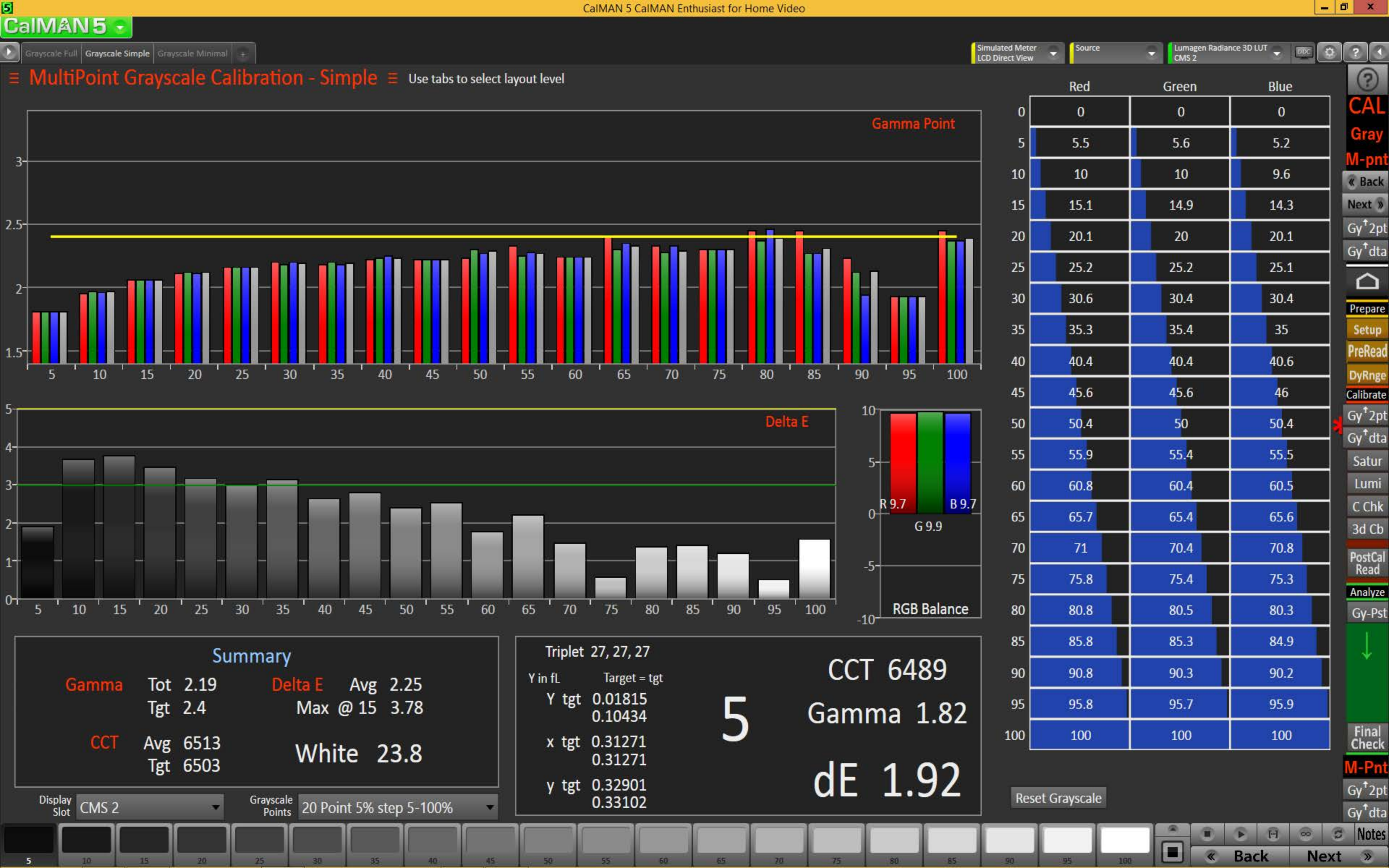
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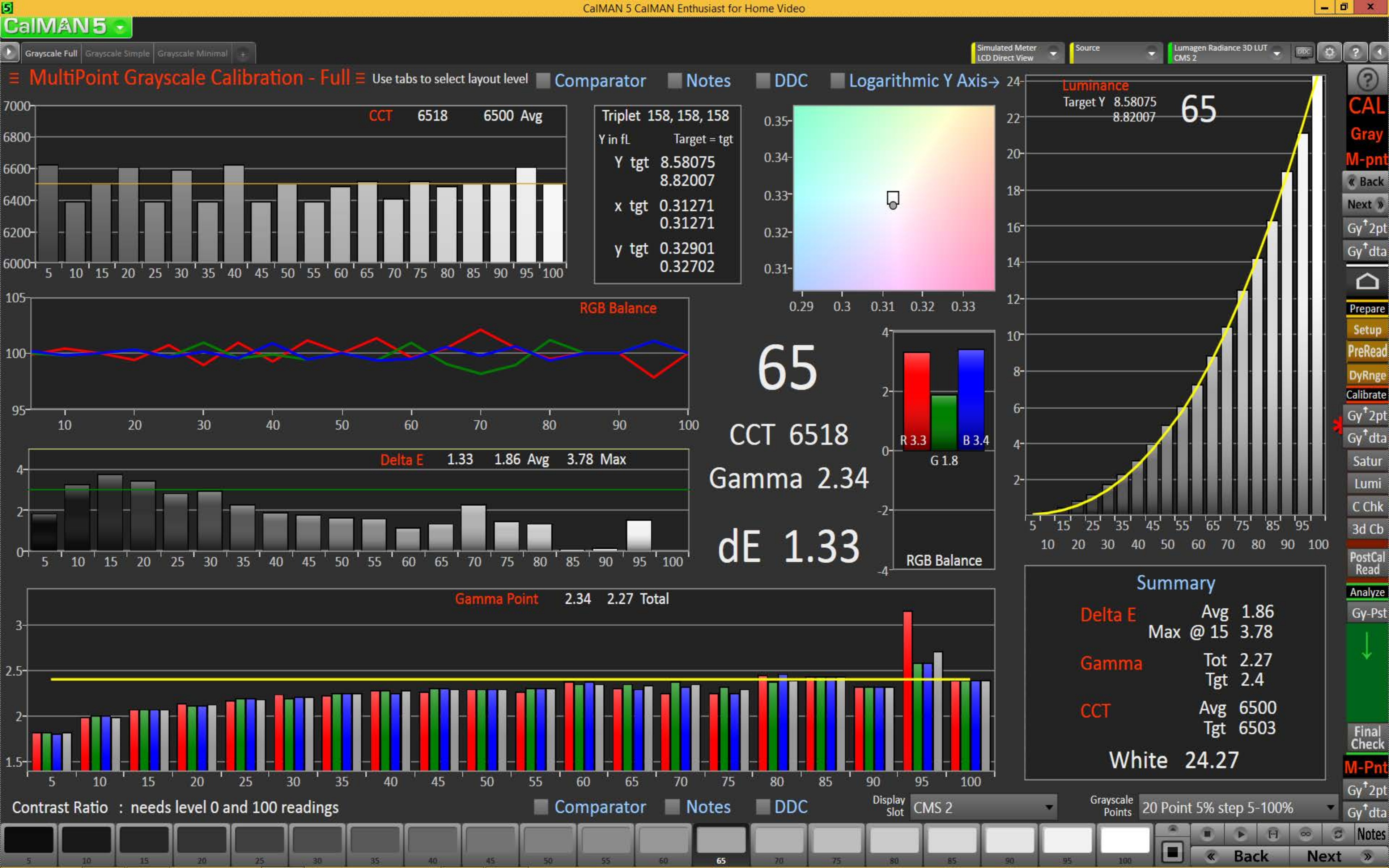
0.35

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Grayscale FullGrayscale SimpleGrayscale Minimal

Simulated MeterLCD Direct ViewSourceLumagen Radiance 3D LUTCMS 2

MultiPoint Grayscale Calibration - Full

Use tabs to select layout level

ComparatorNotesDDCLogarithmic Y Axis

Calibration Notes

Post-Calibration Notes

Calibration Description / Goals

Triplet 158, 158, 158

Y in flTarget = tgt

Y tgt8.580758.82007

x tgt0.312710.31271

y tgt0.329010.32702

65

CCT 6518

Gamma 2.34

dE 1.33

RGB Balance

78 Max

Big

0.350.340.330.320.31

0.290.30.310.320.33

4

2

0

-2

-4

R 3.3G 1.8B 3.4

RGB Balance

	Red	Green	Blue
0	0	0	0
5	5.5	5.6	5.2
10	10	10	9.6
15	15.1	14.9	14.3
20	20.1	20	20.1
25	25.2	25.2	25.1
30	30.6	30.4	30.4
35	35.3	35.4	35
40	40.4	40.4	40.6
45	45.6	45.6	46
50	50.4	50	50.4
55	55.9	55.4	55.5
60	60.8	60.4	60.5
65	65.7	65.4	65.6
70	71	70.4	70.8
75	75.8	75.4	75.3
80	80.8	80.5	80.3
85	85.8	85.3	84.9
90	90.8	90.3	90.2
95	95.8	95.7	95.9
100	100	100	100

Gamma Point2.342.27Total

32.52.01.5

5101520253035404550556065707580859095100

Contrast Ratio : needs level 0 and 100 readings

ComparatorNotesDDC

Display SlotCMS 2

Grayscale Points20 Point 5% step 5-100%

Reset Grayscale

5101520253035404550556065707580859095100

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CalMAN 5

▶

Datagrid

+

Simulated Meter

LCD Direct View

Source

Lumagen Radiance 3D LUT

CMS 2

EDC

⚙

?

◀

Multi-Point Calibration Data - Full

Calibration Notes

DeltaE 2000

	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
RGB Triplet	27, 27, 27	38, 38, 38	49, 49, 49	60, 60, 60	71, 71, 71	82, 82, 82	93, 93, 93	104, 104, 104	115, 115, 115	126, 126, 126	136, 136, 136	147, 147, 147	158, 158, 158	169, 169, 169	180, 180, 180	191, 191, 191	202, 202, 202	213, 213,
RedIndex	27.0000	38.0000	49.0000	60.0000	71.0000	82.0000	93.0000	104.0000	115.0000	126.0000	136.0000	147.0000	158.0000	169.0000	180.0000	191.0000	202.0000	213.0000
GreenIndex	27.0000	38.0000	49.0000	60.0000	71.0000	82.0000	93.0000	104.0000	115.0000	126.0000	136.0000	147.0000	158.0000	169.0000	180.0000	191.0000	202.0000	213.0000
BlueIndex	27.0000	38.0000	49.0000	60.0000	71.0000	82.0000	93.0000	104.0000	115.0000	126.0000	136.0000	147.0000	158.0000	169.0000	180.0000	191.0000	202.0000	213.0000
X	0.3397	0.8036	1.5692	2.5868	3.8346	5.5042	7.5298	9.8912	12.8032	16.3119	19.8698	23.3596	28.8981	34.4122	40.8327	45.8701	53.0832	61.8198
Y cd/m²	0.3575	0.8401	1.6510	2.7392	4.0089	5.8639	7.8720	10.4102	13.3851	17.1623	20.7729	24.7269	30.2198	35.7574	42.7003	48.5549	55.8506	65.0427
Z	0.3960	0.9097	1.7978	2.9994	4.3410	6.3467	8.5241	11.5325	14.4938	18.6883	22.4937	26.6134	33.2930	39.1750	47.0426	52.2594	60.8167	70.8261
Xn 0-1	0.0041	0.0097	0.0189	0.0311	0.0461	0.0662	0.0905	0.1189	0.1540	0.1961	0.2389	0.2809	0.3475	0.4138	0.4910	0.5516	0.6383	0.7434
Yn 0-1	0.0043	0.0101	0.0199	0.0329	0.0482	0.0705	0.0947	0.1252	0.1610	0.2064	0.2498	0.2973	0.3634	0.4300	0.5135	0.5839	0.6716	0.7821
Zn 0-1	0.0048	0.0109	0.0216	0.0361	0.0522	0.0763	0.1025	0.1387	0.1743	0.2247	0.2705	0.3200	0.4003	0.4711	0.5657	0.6284	0.7313	0.8517
Stimulus Percent	0.0502	0.1005	0.1507	0.2009	0.2511	0.3014	0.3516	0.4018	0.4521	0.5023	0.5479	0.5982	0.6484	0.6986	0.7489	0.7991	0.8493	0.8995
RED Stim%:0-1	0.0502	0.1005	0.1507	0.2009	0.2511	0.3014	0.3516	0.4018	0.4521	0.5023	0.5479	0.5982	0.6484	0.6986	0.7489	0.7991	0.8493	0.8995
GRN Stim%:0-1	0.0502	0.1005	0.1507	0.2009	0.2511	0.3014	0.3516	0.4018	0.4521	0.5023	0.5479	0.5982	0.6484	0.6986	0.7489	0.7991	0.8493	0.8995
BLU Stim%:0-1	0.0502	0.1005	0.1507	0.2009	0.2511	0.3014	0.3516	0.4018	0.4521	0.5023	0.5479	0.5982	0.6484	0.6986	0.7489	0.7991	0.8493	0.8995
Measured Red Stimulus	0.1028	0.1488	0.1953	0.2389	0.2853	0.3263	0.3780	0.4189	0.4715	0.5181	0.5663	0.6002	0.6593	0.7138	0.7614	0.7950	0.8471	0.9027
Measured Green Stimulus	0.1033	0.1470	0.1953	0.2418	0.2820	0.3328	0.3735	0.4209	0.4660	0.5181	0.5596	0.6046	0.6545	0.7002	0.7559	0.8008	0.8472	0.9027
Measured Blue Stimulus	0.1041	0.1470	0.1953	0.2418	0.2820	0.3302	0.3735	0.4242	0.4660	0.5181	0.5596	0.5998	0.6596	0.7057	0.7618	0.7946	0.8471	0.9027
Stimulus	5.0000	10.0000	15.0000	20.0000	25.0000	30.0000	35.0000	40.0000	45.0000	50.0000	55.0000	60.0000	65.0000	70.0000	75.0000	80.0000	85.0000	90.0000
Target X cd/m²	0.0603	0.3181	0.8418	1.6791	2.8685	4.4432	6.4323	8.8624	11.7575	15.1402	18.6563	23.0272	27.9436	33.4233	39.4835	46.1404	53.4099	61.3069
Target Y cd/m²	0.0634	0.3347	0.8857	1.7666	3.0180	4.6748	6.7675	9.3242	12.3702	15.9293	19.6286	24.2273	29.3999	35.1652	41.5412	48.5450	56.1933	64.5019
Target Z cd/m²	0.0691	0.3645	0.9645	1.9238	3.2865	5.0907	7.3696	10.1538	13.4708	17.3465	21.3749	26.3828	32.0156	38.2938	45.2371	52.8640	61.1928	70.2406
Target Xn 0-1	0.0007	0.0038	0.0101	0.0202	0.0345	0.0534	0.0773	0.1066	0.1414	0.1821	0.2243	0.2769	0.3360	0.4019	0.4748	0.5548	0.6422	0.7372
Target Yn 0-1	0.0008	0.0040	0.0107	0.0212	0.0363	0.0562	0.0814	0.1121	0.1488	0.1915	0.2360	0.2913	0.3535	0.4229	0.4995	0.5837	0.6757	0.7756
Target Zn 0-1	0.0008	0.0044	0.0116	0.0231	0.0395	0.0612	0.0886	0.1221	0.1620	0.2086	0.2570	0.3172	0.3850	0.4605	0.5440	0.6357	0.7358	0.8446
TargetGamut:Nrml Y	0.0008	0.0040	0.0107	0.0212	0.0363	0.0562	0.0814	0.1121	0.1488	0.1915	0.2360	0.2913	0.3535	0.4229	0.4995	0.5837	0.6757	0.7756
TargetRED:Lin0-1	0.0008	0.0040	0.0107	0.0212	0.0363	0.0562	0.0814	0.1121	0.1488	0.1915	0.2360	0.2913	0.3535	0.4229	0.4995	0.5837	0.6757	0.7756
TargetGRN:Lin0-1	0.0008	0.0040	0.0107	0.0212	0.0363	0.0562	0.0814	0.1121	0.1488	0.1915	0.2360	0.2913	0.3535	0.4229	0.4995	0.5837	0.6757	0.7756
TargetBLU:Lin0-1	0.0008	0.0040	0.0107	0.0212	0.0363	0.0562	0.0814	0.1121	0.1488	0.1915	0.2360	0.2913	0.3535	0.4229	0.4995	0.5837	0.6757	0.7756

↑ Calib

🏠

Prepare

Calibrate

↑ Calib

Analyze

↓

Cal

↑ Calib

Notes Mgmt

CalMAN 5

CalMAN 5 CalMAN Enthusiast for Home Video

Simulated Meter
LCD Direct View

Source

Lumagen Radiance 3D LUT
CMS 2

Multi-Point Calibration Data - Minimal

Gamma Point



Delta E

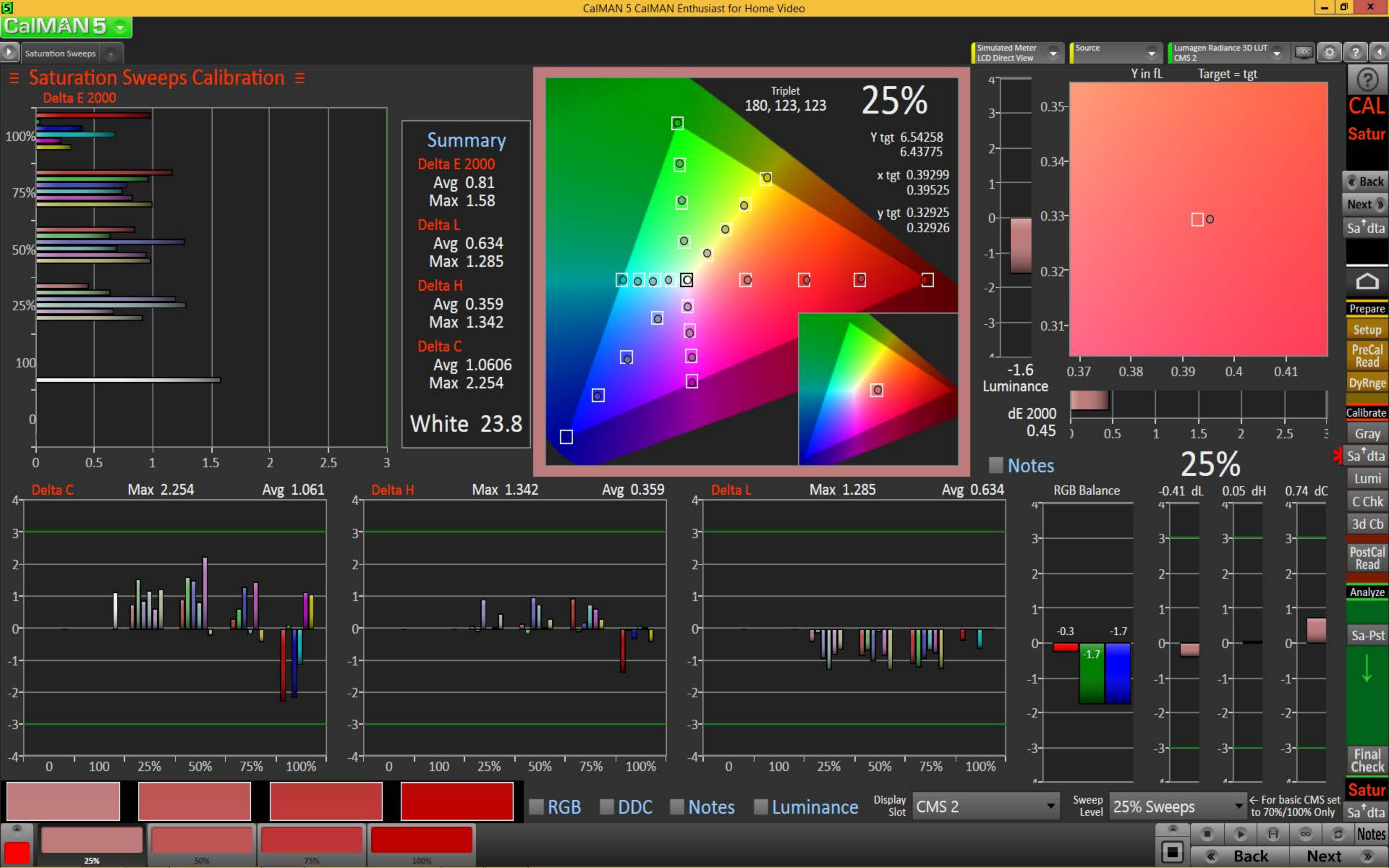


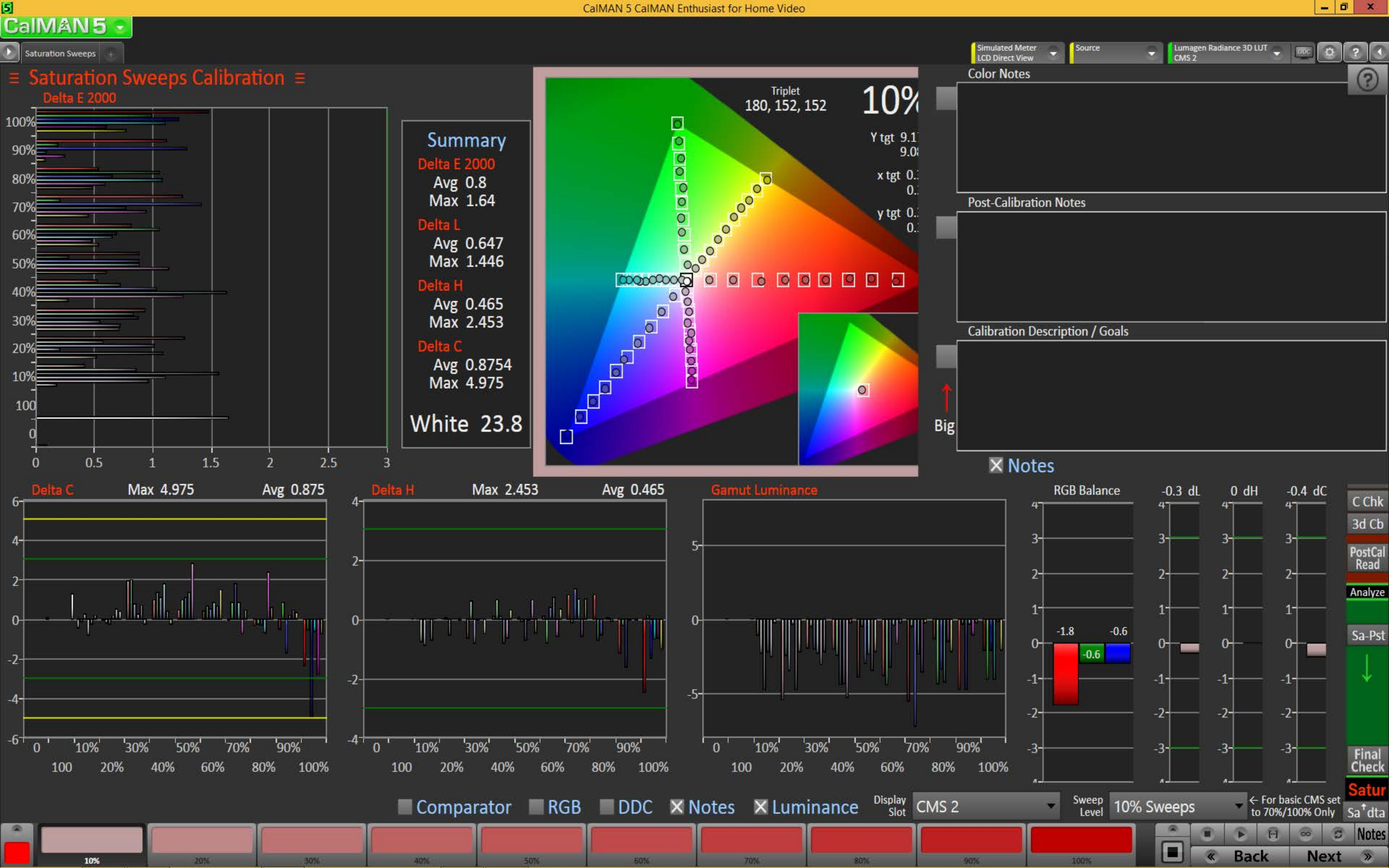
CCT

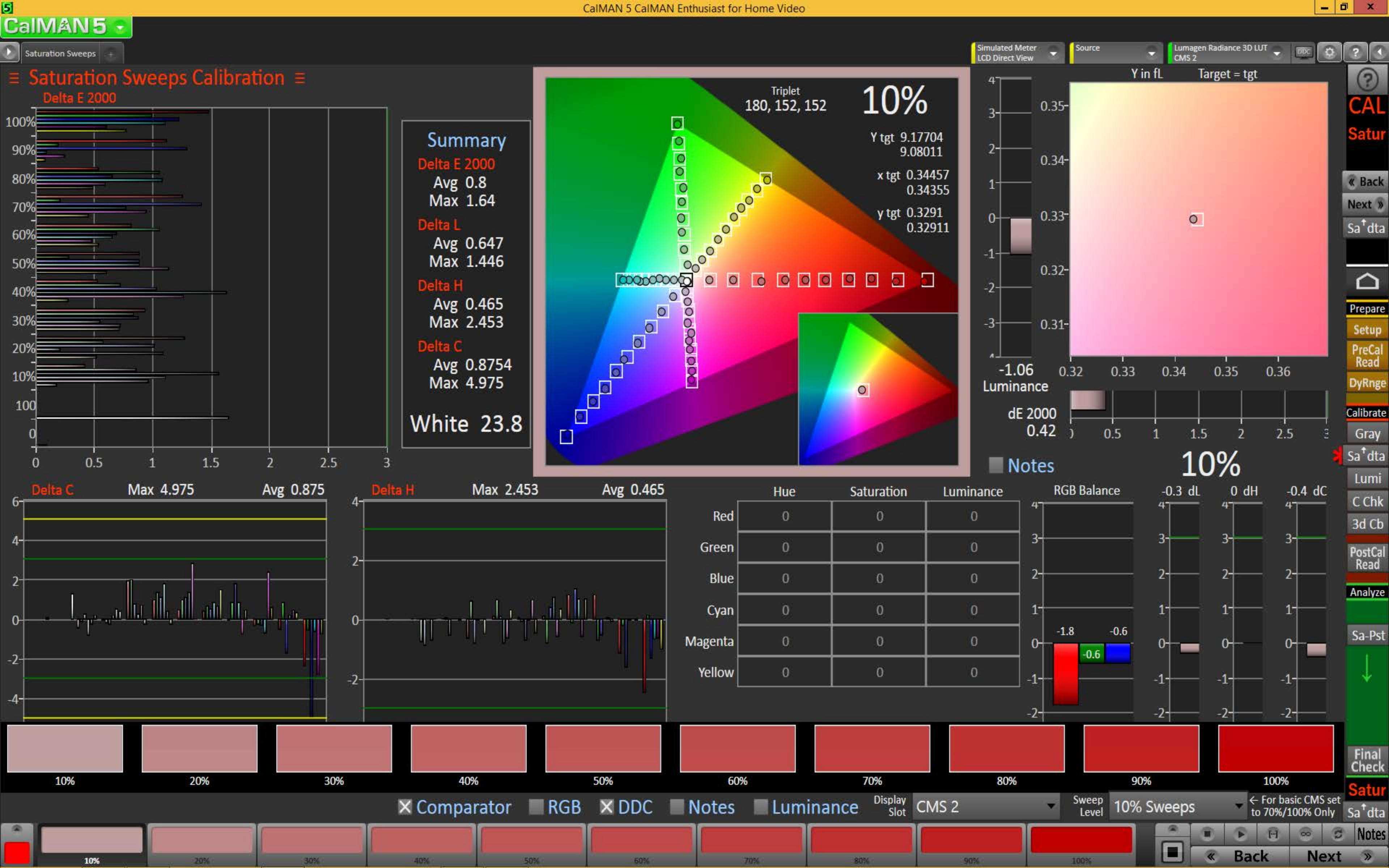


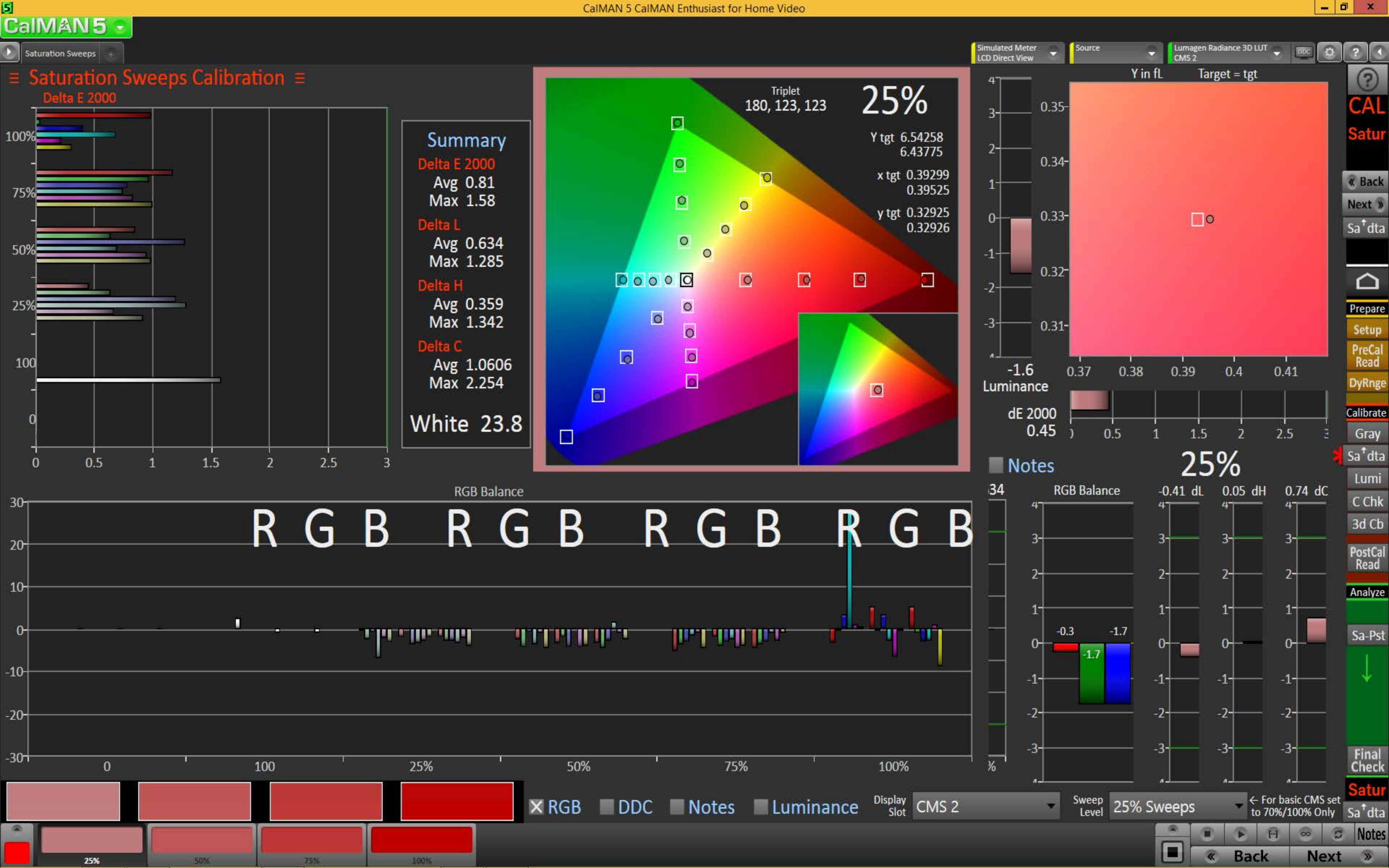
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
RGB Triplet	27, 27, 27	38, 38, 38	49, 49, 49	60, 60, 60	71, 71, 71	82, 82, 82	93, 93, 93	104, 104, 104	115, 115, 115	126, 126, 126	136, 136, 136	147, 147, 147	158, 158, 158	169, 169, 169	180, 180, 180	191, 191, 191	202, 202, 202	213, 213,
RedIndex	27.0000	38.0000	49.0000	60.0000	71.0000	82.0000	93.0000	104.0000	115.0000	126.0000	136.0000	147.0000	158.0000	169.0000	180.0000	191.0000	202.0000	213.0000
GreenIndex	27.0000	38.0000	49.0000	60.0000	71.0000	82.0000	93.0000	104.0000	115.0000	126.0000	136.0000	147.0000	158.0000	169.0000	180.0000	191.0000	202.0000	213.0000
BlueIndex	27.0000	38.0000	49.0000	60.0000	71.0000	82.0000	93.0000	104.0000	115.0000	126.0000	136.0000	147.0000	158.0000	169.0000	180.0000	191.0000	202.0000	213.0000
X	0.3537	0.8148	1.5591	2.5014	3.8102	5.5042	7.6346	10.1580	13.3258	16.4117	19.8698	23.9812	28.1568	33.7683	39.2423	45.5768	52.3397	60.2415
Y cd/m²	0.3721	0.8573	1.6510	2.6318	4.0089	5.8639	8.0326	10.6227	13.9314	17.1623	20.7729	25.2315	29.6155	35.7574	41.0258	48.5549	54.7336	63.7674
Z	0.4052	0.9335	1.8078	2.8658	4.3653	6.3467	8.7468	11.7029	15.0854	18.9076	22.4937	27.4750	31.6960	39.1542	44.4243	52.5528	60.2996	68.6325
Xn 0-1	0.0044	0.0102	0.0195	0.0313	0.0477	0.0689	0.0956	0.1271	0.1668	0.2054	0.2487	0.3001	0.3524	0.4226	0.4911	0.5704	0.6551	0.7540
Yn 0-1	0.0047	0.0107	0.0207	0.0329	0.0502	0.0734	0.1005	0.1329	0.1744	0.2148	0.2600	0.3158	0.3707	0.4475	0.5135	0.6077	0.6850	0.7981
Zn 0-1	0.0051	0.0117	0.0226	0.0359	0.0546	0.0794	0.1095	0.1465	0.1888	0.2366	0.2815	0.3439	0.3967	0.4900	0.5560	0.6577	0.7547	0.8590
Stimulus Percent	0.0502	0.1005	0.1507	0.2009	0.2511	0.3014	0.3516	0.4018	0.4521	0.5023	0.5479	0.5982	0.6484	0.6986	0.7489	0.7991	0.8493	0.8995
RED Stim%:0-1	0.0502	0.1005	0.1507	0.2009	0.2511	0.3014	0.3516	0.4018	0.4521	0.5023	0.5479	0.5982	0.6484	0.6986	0.7489	0.7991	0.8493	0.8995
GRN Stim%:0-1	0.0502	0.1005	0.1507	0.2009	0.2511	0.3014	0.3516	0.4018	0.4521	0.5023	0.5479	0.5982	0.6484	0.6986	0.7489	0.7991	0.8493	0.8995
BLU Stim%:0-1	0.0502	0.1005	0.1507	0.2009	0.2511	0.3014	0.3516	0.4018	0.4521	0.5023	0.5479	0.5982	0.6484	0.6986	0.7489	0.7991	0.8493	0.8995
Measured Red Stimulus	0.1068	0.1511	0.1967	0.2412	0.2874	0.3318	0.3840	0.4336	0.4875	0.5296	0.5758	0.6186	0.6641	0.7085	0.7646	0.8006	0.8586	0.9056
Measured Green Stimulus	0.1068	0.1511	0.1991	0.2412	0.2874	0.3383	0.3840	0.4305	0.4818	0.5257	0.5690	0.6186	0.6610	0.7172	0.7556	0.8164	0.8524	0.9122
Measured Blue Stimulus	0.1068	0.1511	0.1991	0.2412	0.2874	0.3357	0.3840	0.4339	0.4818	0.5299	0.5690	0.6186	0.6558	0.7171	0.7556	0.8100	0.8591	0.9051
Stimulus	5.0000	10.0000	15.0000	20.0000	25.0000	30.0000	35.0000	40.0000	45.0000	50.0000	55.0000	60.0000	65.0000	70.0000	75.0000	80.0000	85.0000	90.0000
Target X cd/m²	0.0579	0.3057	0.8088	1.6133	2.7560	4.2690	6.1801	8.5148	11.2964	14.5465	17.9247	22.1242	26.8478	32.1126	37.9351	44.3310	51.3154	58.9027
Target Y cd/m²	0.0609	0.3216	0.8510	1.6973	2.8997	4.4914	6.5022	8.9586	11.8851	15.3046	18.8588	23.2772	28.2469	33.7862	39.9121	46.6413	53.9896	61.9724
Target Z cd/m²	0.0663	0.3502	0.9267	1.8483	3.1577	4.8910	7.0806	9.7556	12.9425	16.6662	20.5367	25.3481	30.7600	36.7921	43.4631	50.7909	58.7931	67.4860
Target Xn 0-1	0.0007	0.0038	0.0101	0.0202	0.0345	0.0534	0.0773	0.1066	0.1414	0.1821	0.2243	0.2769	0.3360	0.4019	0.4748	0.5548	0.6422	0.7372

Notes Mgmt









CalMAN 5

Datagrid

Simulated Meter
LCD Direct View

Source

Lumagen Radiance 3D LUT
CMS 2

≡ Saturation Sweep Calibration Data ≡

Color Notes

Post-Calibration Notes

25%

	25%	50%	75%	100%
RGB Triplet	180, 123, 123	180, 90, 90	180, 64, 64	180, 16, 16
RedIndex	180.0000	180.0000	180.0000	180.0000
GreenIndex	123.0000	90.0000	64.0000	16.0000
BlueIndex	123.0000	90.0000	64.0000	16.0000
X	26.4781	21.2465	18.4714	17.2634
Y cd/m²	22.0574	14.7289	11.1591	8.9798
Z	18.4545	8.7247	4.0089	0.9692
Xn 0-1	0.3248	0.2606	0.2266	0.2117
Yn 0-1	0.2705	0.1807	0.1369	0.1101
Zn 0-1	0.2264	0.1070	0.0492	0.0119
Stimulus Percent	0.7489	0.7489	0.7489	0.7489
RED Stim%:0-1	0.7489	0.7489	0.7489	0.7489
GRN Stim%:0-1	0.4886	0.3379	0.2192	0.0000
BLU Stim%:0-1	0.4886	0.3379	0.2192	0.0000
Measured Red Stimulus	0.7486	0.7419	0.7326	0.7403
Measured Green Stimulus	0.4825	0.3274	0.2118	0.0137
Measured Blue Stimulus	0.4824	0.3274	0.2042	0.0136
Stimulus	75.0000	75.0000	75.0000	75.0000
Target X cd/m²	26.7564	21.9146	19.5254	17.7719
Target Y cd/m²	22.4166	15.2976	11.7693	9.1636
Target Z cd/m²	18.9104	9.2157	4.4003	0.8331
Target Xn 0-1	0.3282	0.2688	0.2395	0.2180
Target Yn 0-1	0.2749	0.1876	0.1444	0.1124
Target Zn 0-1	0.2319	0.1130	0.0540	0.0102
TargetGamut:Nrml Y	0.5247	0.5252	0.5256	0.5262
TargetRED:Lin0-1	0.5252	0.5263	0.5273	0.5285
TargetGRN:Lin0-1	0.2074	0.0962	0.0409	0.0000
TargetBLU:Lin0-1	0.2074	0.0962	0.0409	0.0000
TargetGamut:Nrml MaxY	0.5241	0.3573	0.2746	0.2136
Target x:CIE31	0.3930	0.4720	0.5470	0.6400
Target y:CIE31	0.3293	0.3295	0.3297	0.3300
Target z:CIE31	0.2778	0.1985	0.1233	0.0300

25%

50%

75%

100%

↑ Calib

Prepare

Calibrate

↑ Calib

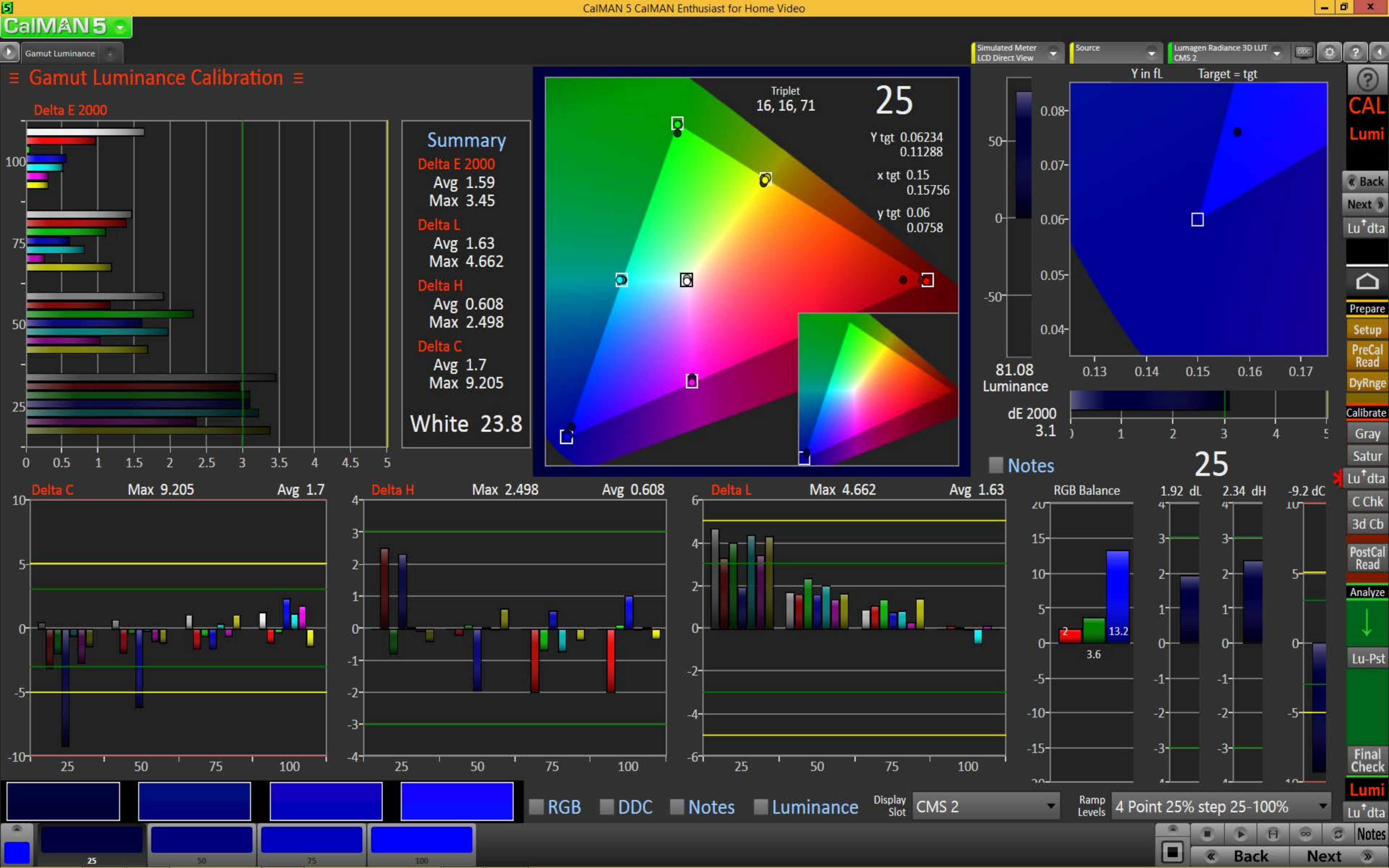
Analyze

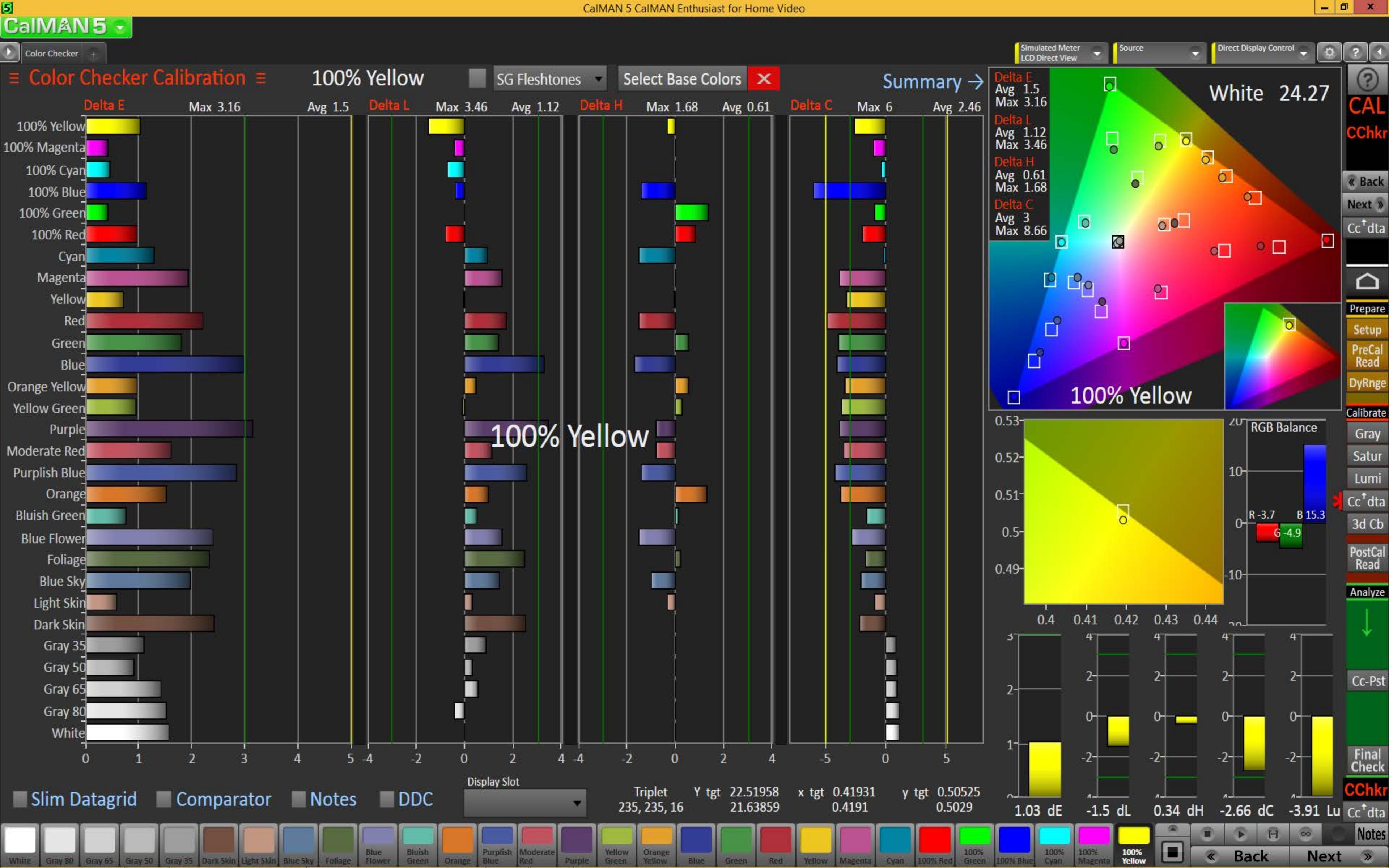
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Cal

↑ Calib

Notes Mgmt





CalMAN 5

Color Checker

Color Checker Calibration

100% Yellow

SG Fleshtones

Select Base Colors

Simulated Meter
LCD Direct View

Source

Sharp Elite
ISF Day

Color Checker Calibration

100% Yellow

SG Fleshtones

Select Base Colors

Delta E

Max 3.16

Avg 1.5

Delta L

Max 3.46

Avg 1.12

Delta H

Max 1.68

Avg 0.61

100% Yellow

100% Magenta

100% Cyan

100% Blue

100% Green

100% Red

Cyan

Magenta

Yellow

Red

Green

Blue

Orange Yellow

Yellow Green

Purple

Moderate Red

Purplish Blue

Orange

Bluish Green

Blue Flower

Foliage

Blue Sky

Light Skin

Dark Skin

Gray 35

Gray 50

Gray 65

White

Gray 80

Gray 65

Gray 50

Gray 35

Dark Skin

Light Skin

Blue Sky

Foliage

Blue Flower

Bluish Green

Orange

Purplish Blue

Moderate Red

Purple

Yellow Green

Orange Yellow

Blue

Green

Red

Yellow

Magenta

Cyan

100% Red

100% Green

100% Blue

100% Cyan

100% Magenta

100% Yellow

Reset CMS

RGB Balance

R -3.7

G -4.9

B 15.3

0.53

0.52

0.51

0.5

0.49

0.4

0.41

0.42

0.43

0.44

5

4

4

4

4

2

2

2

2

2

Triplet

235, 235, 16

Y tgt

22.51958

21.63859

x tgt

0.41931

0.4191

y tgt

0.50525

0.5029

1.03 dE

-1.5 dL

0.34 dH

-2.66 dC

-3.91 Lu

Back

Next

CalMAN 5

Color Checker

Color Checker Calibration

100% Yellow

SG Fleshtones

Select Base Colors

Summary

Delta E

Max 3.16

Avg 1.5

Delta L

Max 3.46

Avg 1.12

Delta H

Max 1.68

Avg 0.61

Delta C

Max 6

Avg 2.46

100% Yellow

100% Magenta

100% Cyan

100% Blue

100% Green

100% Red

Cyan

Magenta

Yellow

Red

Green

Blue

Orange Yellow

Yellow Green

Purple

Moderate Red

Purplish Blue

Orange

Bluish Green

Blue Flower

Foliage

Blue Sky

Light Skin

Dark Skin

Gray 35

Gray 50

Gray 65

Gray 80

White

White 24.27

Delta E

Avg 1.5

Max 3.16

Delta L

Avg 1.12

Max 3.46

Delta H

Avg 0.61

Max 1.68

Delta C

Avg 3

Max 8.66

100% Yellow

Color Notes

Post-Calibration Notes

Calibration Description / Goals

RGB Balance

R -3.7

G -4.9

B 15.3

1.03 dE

-1.5 dL

0.34 dH

-2.66 dC

-3.91 Lu

Slim Datagrid

Comparator

Notes

DDC

Display Sk

ISF Day

Big

White

Gray 80

Gray 65

Gray 50

Gray 35

Dark Skin

Light Skin

Blue Sky

Foliage

Blue Flower

Bluish Green

Orange

Purplish Blue

Moderate Red

Purple

Yellow Green

Orange Yellow

Blue

Green

Red

Yellow

Magenta

Cyan

100% Red

100% Green

100% Blue

100% Cyan

100% Magenta

100% Yellow

CalMAN 5

CalMAN 5 CalMAN Enthusiast for Home Video

▶ Datagrid +

Simulated Meter
LCD Direct View

Source

Lumagen Radiance 3D LUT
CMS 2

EDC

⚙

?

◀

≡ Color Checker Calibration Data ≡

Color Notes

Post-Cal Notes

?

CAL

↑ Calib

🏠

Prepare

Calibrate

Analyze

↓

CAL

↑ Calib

Notes Mgmt

	White	Gray 80	Gray 65	Gray 50	Gray 35	Dark Skin	Light Skin	Blue Sky	Foliage	Blue Flower	Bluish Green	Orange
RGB Triplet	235, 235, 235	213, 213, 213	196, 196, 196	176, 176, 176	152, 152, 152	115, 86, 73	182, 145, 128	97, 121, 150	93, 108, 73	128, 126, 167	101, 178, 161	202, 119, 51
RedIndex	235.0000	213.0000	196.0000	176.0000	152.0000	115.0000	182.0000	97.0000	93.0000	128.0000	101.0000	202.0000
GreenIndex	235.0000	213.0000	196.0000	176.0000	152.0000	86.0000	145.0000	121.0000	108.0000	126.0000	178.0000	119.0000
BlueIndex	235.0000	213.0000	196.0000	176.0000	152.0000	73.0000	128.0000	150.0000	73.0000	167.0000	161.0000	51.0000
X	75.4818	61.3683	49.8466	37.3743	26.4242	8.7378	29.8560	14.0157	8.2783	20.4706	24.0255	28.9305
Y cd/m²	79.8997	63.7674	51.7952	39.5759	27.9807	7.9449	27.8773	14.9057	10.3733	18.9469	33.5003	22.6453
Z	85.9957	69.8620	56.7456	43.3355	30.6387	5.1464	20.9784	27.2432	5.7141	36.3740	34.9527	4.5756
Xn 0-1	0.9447	0.7681	0.6239	0.4678	0.3307	0.1094	0.3737	0.1754	0.1036	0.2562	0.3007	0.3621
Yn 0-1	1.0000	0.7981	0.6483	0.4953	0.3502	0.0994	0.3489	0.1866	0.1298	0.2371	0.4193	0.2834
Zn 0-1	1.0763	0.8744	0.7102	0.5424	0.3835	0.0644	0.2626	0.3410	0.0715	0.4552	0.4375	0.0573
Stimulus Percent	1.0000	0.8995	0.8219	0.7306	0.6210	0.4521	0.7580	0.6119	0.4201	0.6895	0.7397	0.8493
RED Stim%:0-1	1.0000	0.8995	0.8219	0.7306	0.6210	0.4521	0.7580	0.3699	0.3516	0.5114	0.3881	0.8493
GRN Stim%:0-1	1.0000	0.8995	0.8219	0.7306	0.6210	0.3196	0.5890	0.4795	0.4201	0.5023	0.7397	0.4703
BLU Stim%:0-1	1.0000	0.8995	0.8219	0.7306	0.6210	0.2603	0.5114	0.6119	0.2603	0.6895	0.6621	0.1598
Measured Red Stimulus	0.9948	0.9236	0.8469	0.7391	0.6397	0.4772	0.7758	0.4012	0.3840	0.5506	0.4014	0.8666
Measured Green Stimulus	1.0021	0.9060	0.8308	0.7481	0.6475	0.3549	0.6083	0.5051	0.4487	0.5275	0.7574	0.4930
Measured Blue Stimulus	0.9943	0.9132	0.8374	0.7481	0.6475	0.2961	0.5393	0.6317	0.2984	0.7151	0.6781	0.2072
Stimulus	100.0000	90.0000	82.0000	73.0000	62.0000	45.0000	76.0000	61.0000	42.0000	69.0000	74.0000	85.0000
Target X cd/m²	75.9420	58.9027	47.4319	35.7523	24.2053	7.3215	27.8523	12.3580	6.8158	17.9712	22.6171	27.1172
Target Y cd/m²	79.8997	61.9724	49.9038	37.6155	25.4667	6.4548	25.9351	13.1245	8.7388	16.7067	31.6120	20.8994
Target Z cd/m²	87.0083	67.4860	54.3437	40.9622	27.7325	3.8490	18.6573	25.1326	4.3164	33.2468	33.0071	3.5331
Target Xn 0-1	0.9505	0.7372	0.5936	0.4475	0.3029	0.0916	0.3486	0.1547	0.0853	0.2249	0.2831	0.3394
Target Yn 0-1	1.0000	0.7756	0.6246	0.4708	0.3187	0.0808	0.3246	0.1643	0.1094	0.2091	0.3956	0.2616
Target Zn 0-1	1.0890	0.8446	0.6801	0.5127	0.3471	0.0482	0.2335	0.3146	0.0540	0.4161	0.4131	0.0442
TargetGamut:Nrml Y	1.0000	0.7756	0.6246	0.4708	0.3187	0.1488	0.5143	0.3076	0.1247	0.4097	0.4850	0.6757
TargetRED:Lin0-1	1.0000	0.7756	0.6246	0.4708	0.3187	0.1488	0.5143	0.0919	0.0814	0.2000	0.1032	0.6757
TargetGRN:Lin0-1	1.0000	0.7756	0.6246	0.4708	0.3187	0.0647	0.2808	0.1713	0.1247	0.1915	0.4850	0.1636
TargetBLU:Lin0-1	1.0000	0.7756	0.6246	0.4708	0.3187	0.0395	0.2000	0.3076	0.0395	0.4097	0.3717	0.0123
TargetGamut:Nrml MaxY	1.0000	1.0000	1.0000	1.0000	1.0000	0.5431	0.6312	0.5340	0.8768	0.5103	0.8157	0.3871
Target x:CIE31	0.3127	0.3127	0.3127	0.3127	0.3127	0.4154	0.3845	0.2442	0.3430	0.2646	0.2593	0.5260
Target y:CIE31	0.3290	0.3290	0.3290	0.3290	0.3290	0.3662	0.3580	0.2593	0.4398	0.2460	0.3624	0.4054

DeltaE 2000

Cyan

Magenta

Yellow

Red

Green

Blue

Orange Yellow

Yellow Green

Purple

Moderate Red

Purplish Blue

Orange

Bluish Green

Blue Flower

Foliage

Blue Sky

Light Skin

Dark Skin

Gray 35

Gray 50

Gray 65

Gray 80

White

0

1

2

3

4

CalMAN 5

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Datagrid 1

Datagrid 2

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Simulated Meter

LCD Direct View

Source

Lumagen Radiance 3D LUT

CMS 2

EDC

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Color Checker Calibration Data Slim 1

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Color Notes

Post-Cal Notes

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CAL

	White	Gray 80	Gray 65	Gray 50	Gray 35	Dark Skin	Light Skin	Blue Sky	Foliage	Blue Flower	Bluish Green	Orange	Purplish Blue	Moderate Red	Purple	Yellow Green	Orange Yellow	Blue	Green	Red	Yellow	Magenta
X	75.4818	61.3683	49.8466	37.3743	26.4242	8.7378	29.8560	14.0157	8.2783	20.4706	24.0255	28.9305	10.2661	21.5059	7.0870	26.0974	36.5020	6.8281	11.4383	15.5930	46.1183	23.5092
Y cd/m²	79.8997	63.7674	51.7952	39.5759	27.9807	7.9449	27.8773	14.9057	10.3733	18.9469	33.5003	22.6453	9.1569	14.5361	5.4753	34.4322	33.9863	4.9537	18.2693	9.2035	48.6809	15.3615
Z	85.9957	69.8620	56.7456	43.3355	30.6387	5.1464	20.9784	27.2432	5.7141	36.3740	34.9527	4.5756	27.9696	10.3797	11.7433	8.9594	6.6342	23.6071	7.7722	4.2040	7.7167	23.5455
Target x:CIE31	0.3127	0.3127	0.3127	0.3127	0.3127	0.4154	0.3845	0.2442	0.3430	0.2646	0.2593	0.5260	0.2083	0.4790	0.2855	0.3781	0.4831	0.1823	0.3044	0.5631	0.4516	0.3803
x: CIE31	0.3127	0.3147	0.3147	0.3107	0.3107	0.4003	0.3793	0.2495	0.3398	0.2701	0.2598	0.5152	0.2166	0.4633	0.2916	0.3756	0.4733	0.1929	0.3052	0.5377	0.4499	0.3767
Target y:CIE31	0.3290	0.3290	0.3290	0.3290	0.3290	0.3662	0.3580	0.2593	0.4398	0.2460	0.3624	0.4054	0.1782	0.3124	0.2084	0.5025	0.4408	0.1241	0.5061	0.3198	0.4749	0.2409
y: CIE31	0.3310	0.3270	0.3270	0.3290	0.3290	0.3640	0.3542	0.2654	0.4257	0.2500	0.3622	0.4033	0.1932	0.3131	0.2253	0.4955	0.4407	0.1400	0.4874	0.3174	0.4749	0.2461
Target Y	23.3198	18.0875	14.5651	10.9786	7.4328	1.8839	7.5695	3.8306	2.5506	4.8761	9.2264	6.0998	2.2775	3.8696	1.1929	9.4932	9.3784	1.1317	4.8192	2.3973	13.4046	3.9281
Y	23.3198	18.6114	15.1171	11.5508	8.1665	2.3188	8.1364	4.3504	3.0276	5.5299	9.7775	6.6093	2.6726	4.2426	1.5980	10.0495	9.9194	1.4458	5.3321	2.6862	14.2082	4.4834
Sat: L*u*v*	1.6980	2.7192	2.5053	1.4006	1.2155	27.0664	36.2580	34.7223	27.6153	40.7919	42.8531	96.4184	59.9115	78.1560	32.0361	71.9084	86.7510	68.3829	57.9339	94.5365	92.2865	67.0241
Hue: L*u*v*	125.0423	340.2387	340.2387	191.8451	191.8451	33.5394	32.3223	245.2112	107.4542	270.0467	168.6033	31.6937	259.6751	7.1188	292.4934	100.8367	50.1378	264.0938	127.7510	9.5671	67.5628	335.249
L*	100.0000	91.5992	84.3936	75.7811	65.7641	37.7409	65.6632	50.2817	42.7375	55.7997	70.8212	60.1966	40.3455	49.7293	31.4692	71.6189	71.2391	29.9114	54.9333	40.4409	82.3398	50.9505
Gamma Point: Flat	2.4000	2.1303	2.2103	2.2382	2.2024	2.9073	3.8001	3.4180	2.3539	3.8708	2.8832	7.7197	4.8416	6.1502	3.0907	2.6817	8.0743	5.2538	2.7080	5.8129	6.9834	5.2530

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Calib

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Data2

Analyze

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CAL

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Calib

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Datagrid 2

Notes Mgmt

CalMAN 5

Datagrid 1

Datagrid 2

+

Simulated Meter

LCD Direct View

Source

Lumagen Radiance 3D LUT

CMS 2

EDC

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Color Checker Calibration Data Slim 2

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Color Notes

Post-Cal Notes

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CAL

↑ Calib

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Prepare

Calibrate

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↑ Calib

↑ Data1

Analyze

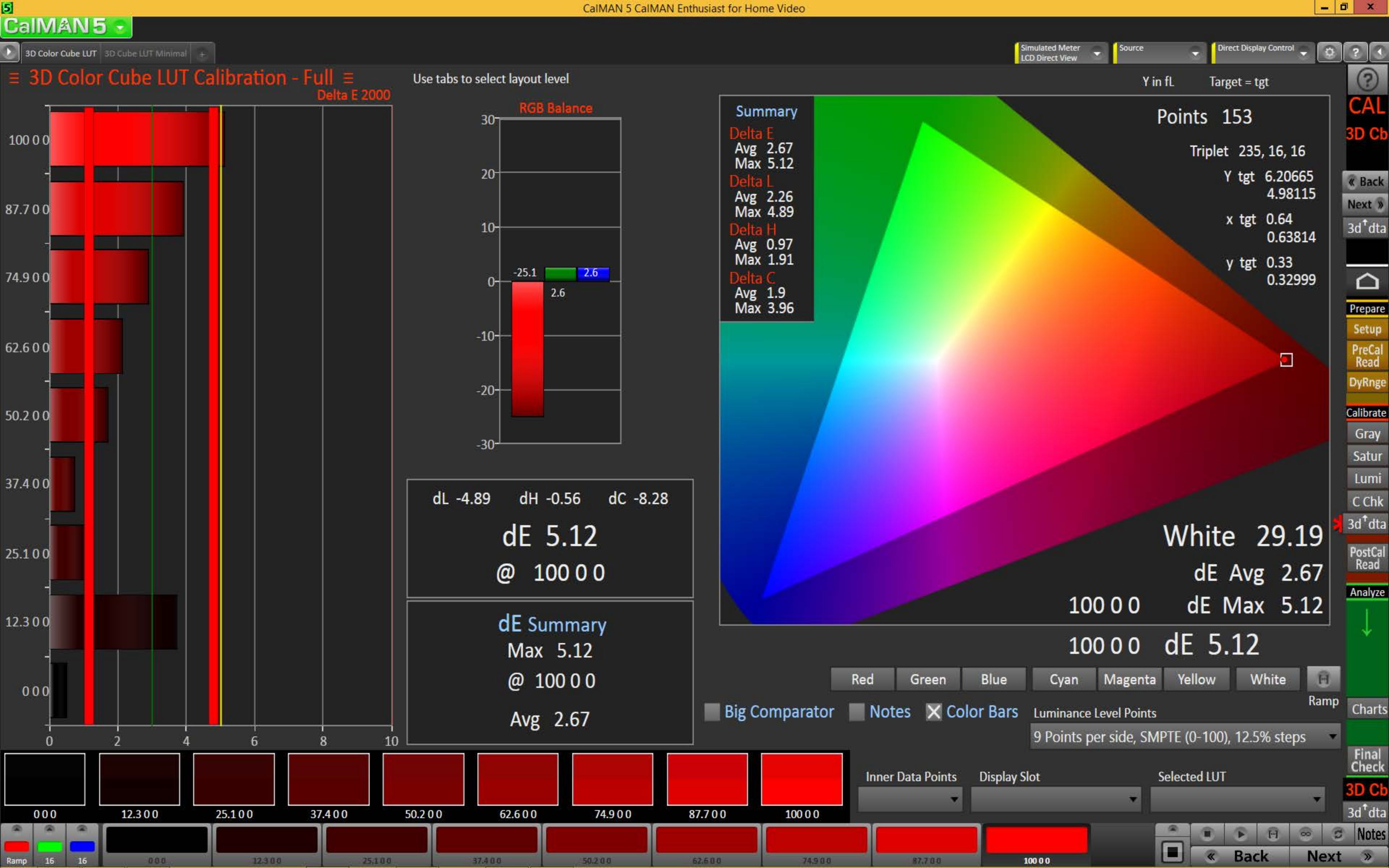
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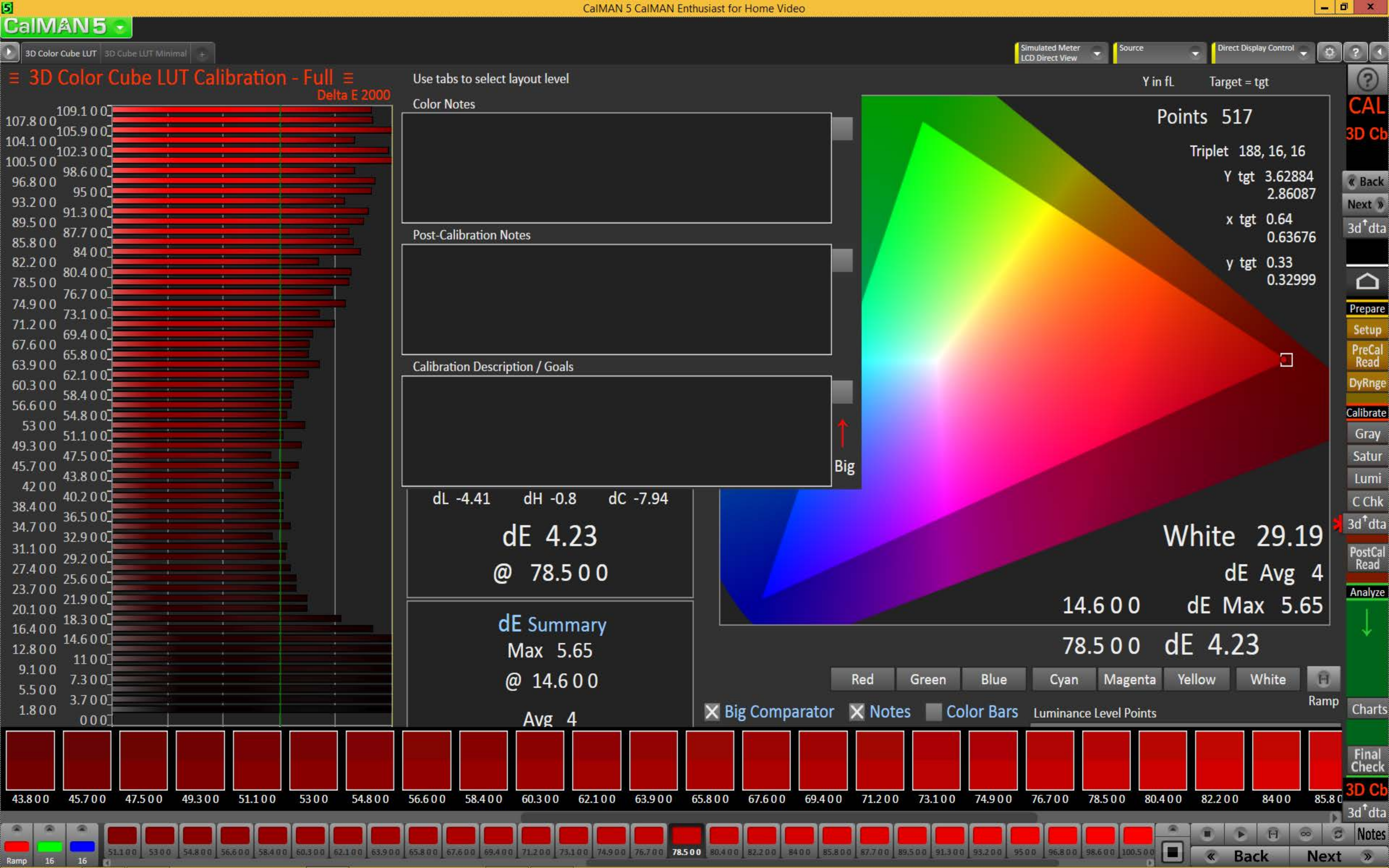
CAL

↑ Calib

↑ Datagrid 1

Notes Mgmt





CalMAN 5

3D Color Cube LUT

3D Cube LUT Minimal

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Simulated Meter

LCD Direct View

Source

Direct Display Control

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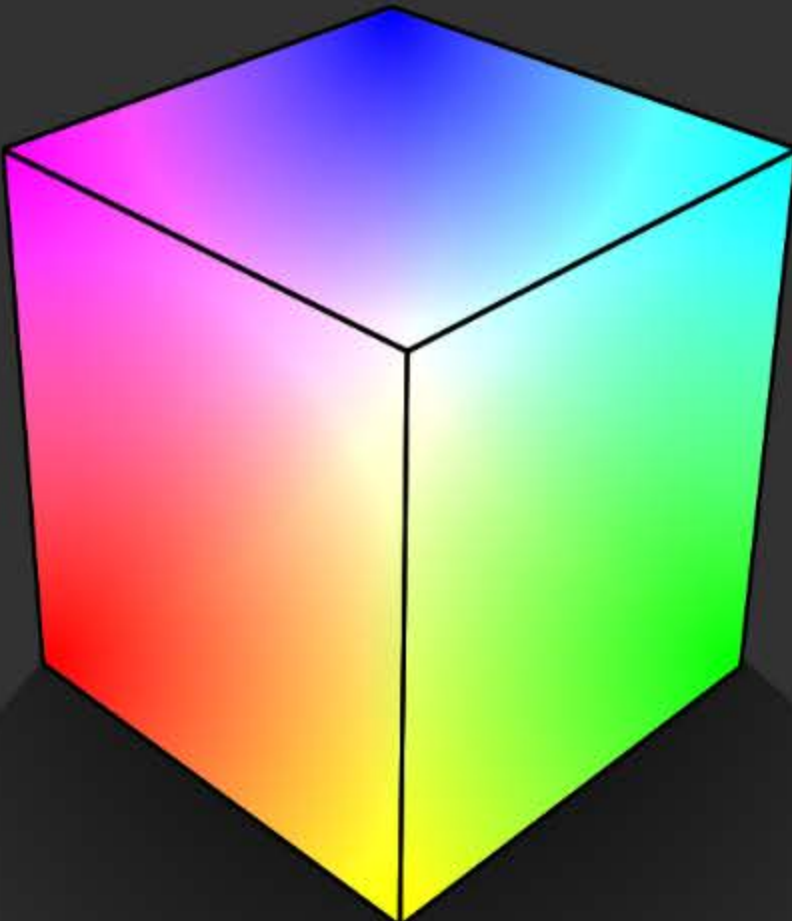
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≡ 3D Color Cube LUT Calibration - Minimal ≡

Use tabs to select layout level

View charts in the Analysis section



Summary

Points 517

White 29.19

dE Avg 4.07

dE Max 12.9 @ 0 0 1.8

dE 3.41 @ 0 0 109.1

dL -3.61 dH -1.36 dC -11.72

RGB Balance

R -21.3 G 9.1 B -27.2

Luminance Level Points

Inner Data Points

Display Slot

Selected LUT

61 Points per side, SMPTE (0-109)

16

16

Ramp

0 0 60.3

0 0 62.1

0 0 63.9

0 0 65.8

0 0 67.6

0 0 69.4

0 0 71.2

0 0 73.1

0 0 74.9

0 0 76.7

0 0 78.5

0 0 80.4

0 0 82.2

0 0 84

0 0 85.8

0 0 87.7

0 0 89.5

0 0 91.3

0 0 93.2

0 0 95

0 0 96.8

0 0 98.6

0 0 100.5

0 0 102.3

0 0 104.1

0 0 105.9

0 0 107.8

0 0 109.1

Back

Next

Back

Next

3D Cb

3d dta

Prepare

Setup

PreCal Read

DyRnge

Calibrate

Gray

Satur

Lumi

C Chk

3d dta

PostCal Read

Analyze

Charts

Final Check

3D Cb

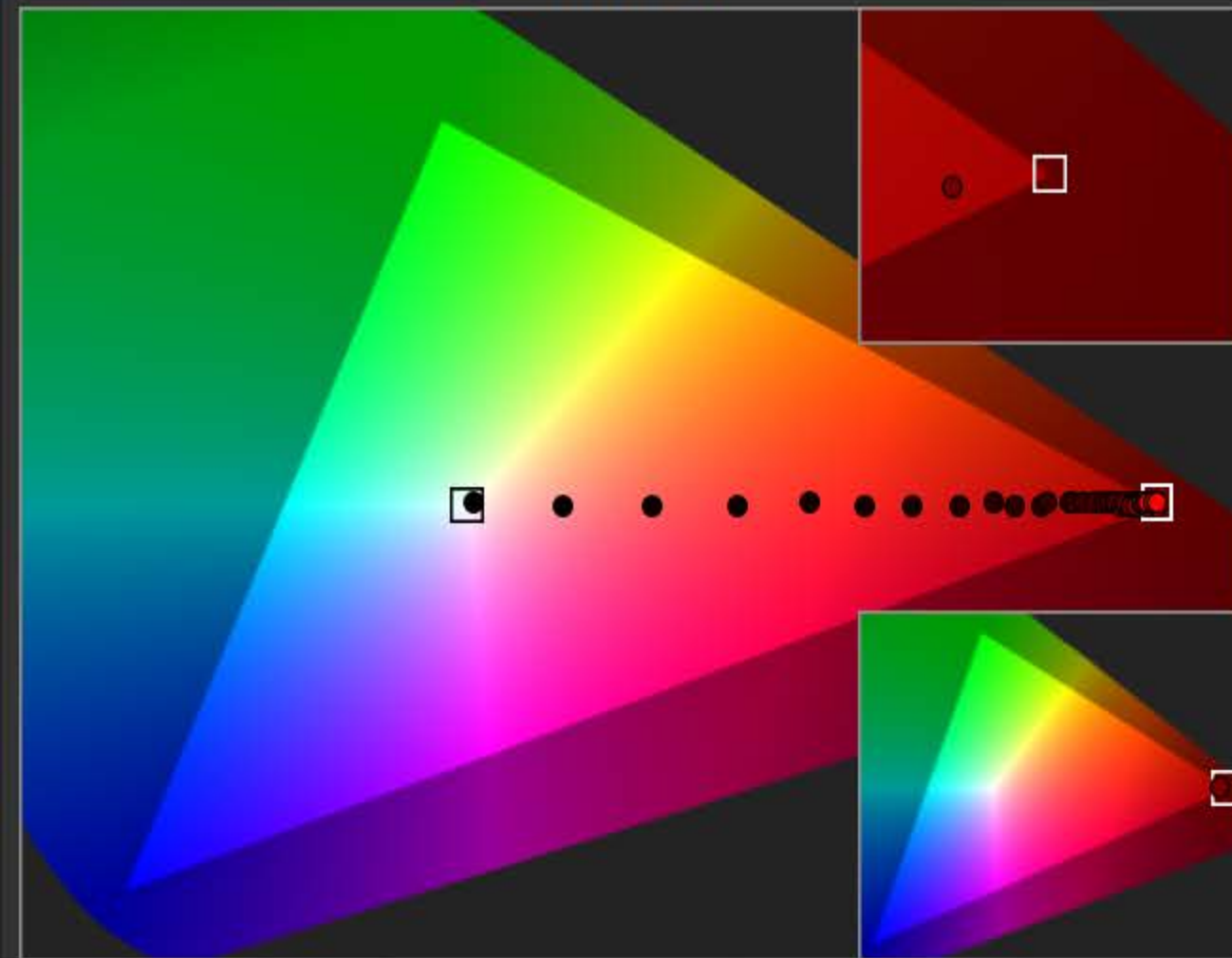
3d dta

Notes

Color Notes

Post-Calibration Notes

45.700



- White
Red
Green
Blue
Cyan
Magenta
Yellow

[illegible]

CalMAN 5

Post-Cal Readings

12/27/2014 Calibration

Gamma Breakout

Tot 2.21

Y Min 0

Y Max 23.8

1 Grayscale

Full Charts

20 Point 5% step 5-100%

100

Avg 2.24

Max 3.66

DeltaE 1.64

2 Saturation Sweeps

Full Charts

25% Sweeps

Avg 0.87

Max 2.94

DeltaE 0.51

3 Gamut Luminance

Full Charts

4 Point 25% step 25-100%

Avg 1.78

Max 3.61

DeltaE 0.59

4 Color Checker

Full Charts

Add Custom Color Set

SG Fleshtones

DeltaE 0.9

Avg 1.93

Max 3.26

100% Yellow

100% Magenta

100% Blue

100% Red

Magenta

Red

Blue

Yellow Green

Moderate Red

Orange

Blue Flower

Blue Sky

Dark Skin

Gray 35

Gray 50

Gray 65

Gray 80

White

100%

100

ISF Day

Contrast

Brightness

Backlight

TV Gamma

Color

Tint

Red

Green

Blue

Gain

Cut

Post-Cal Notes

Big

Display Slot

Use [...] mid-screen or below to read all series or select one from the individual series above

Back

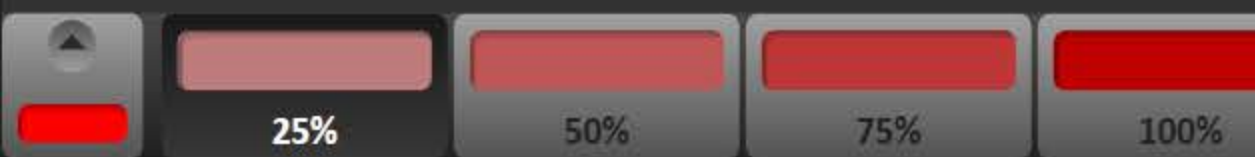
Next



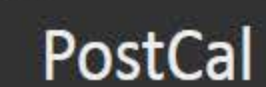
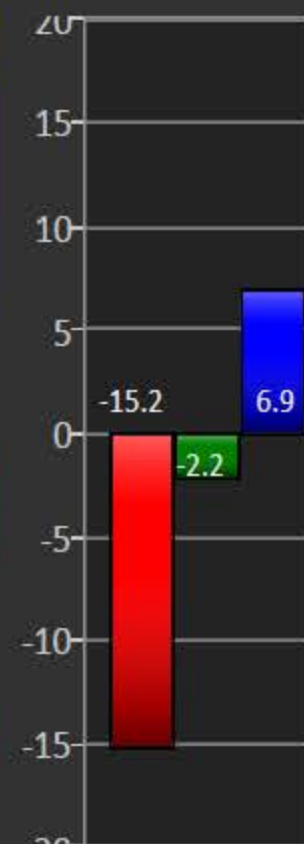
■ Notes

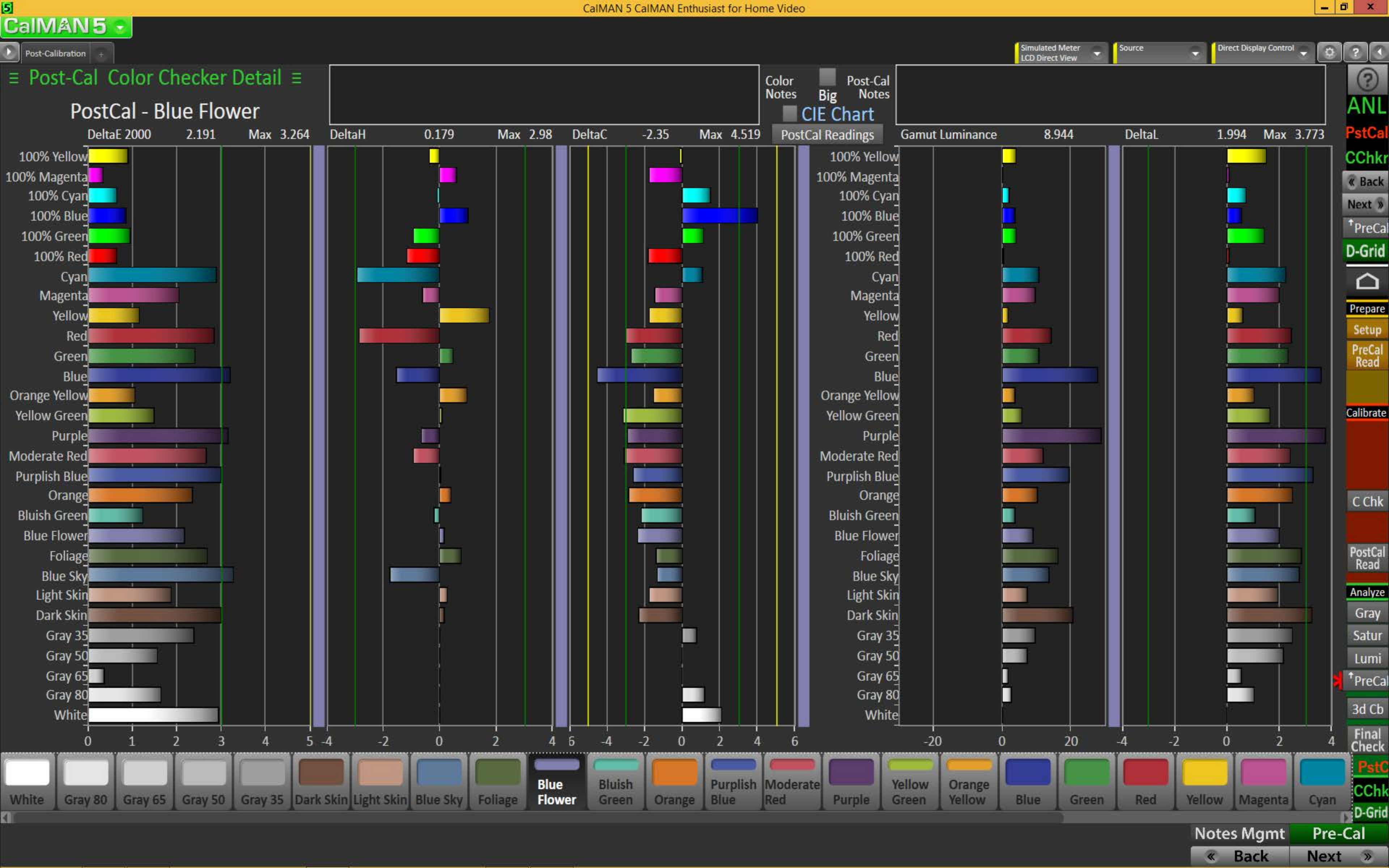


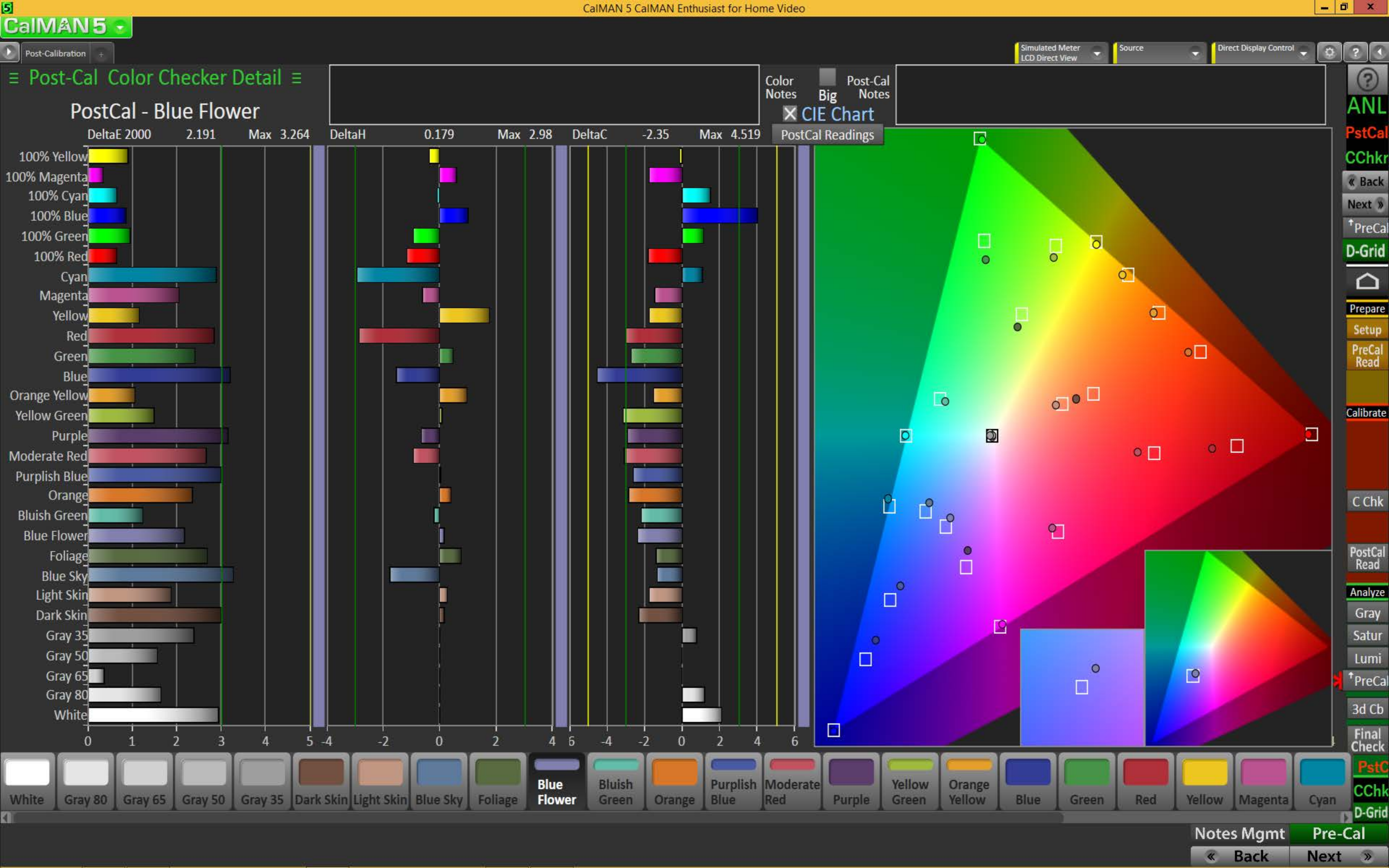
PostCal Readings

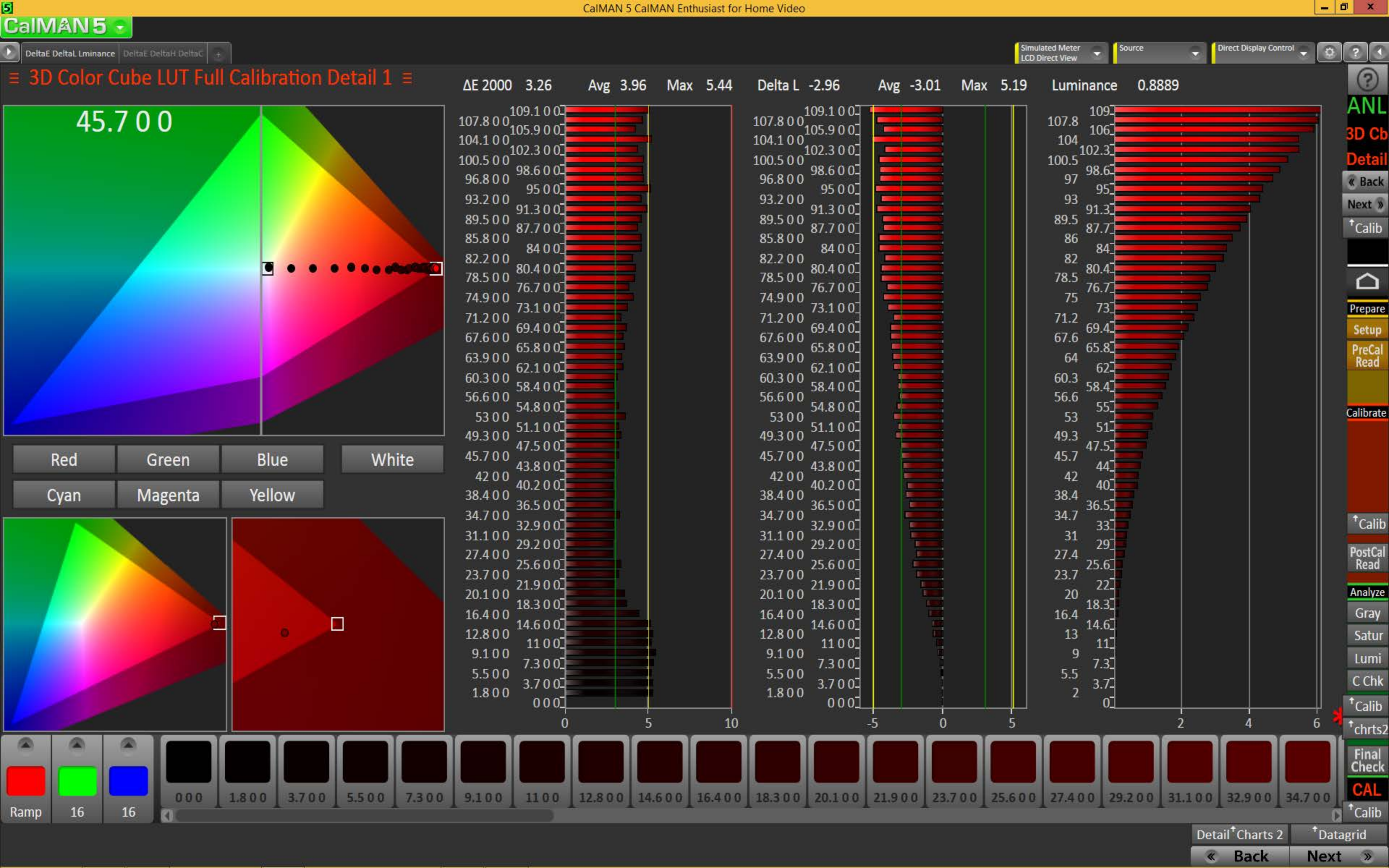


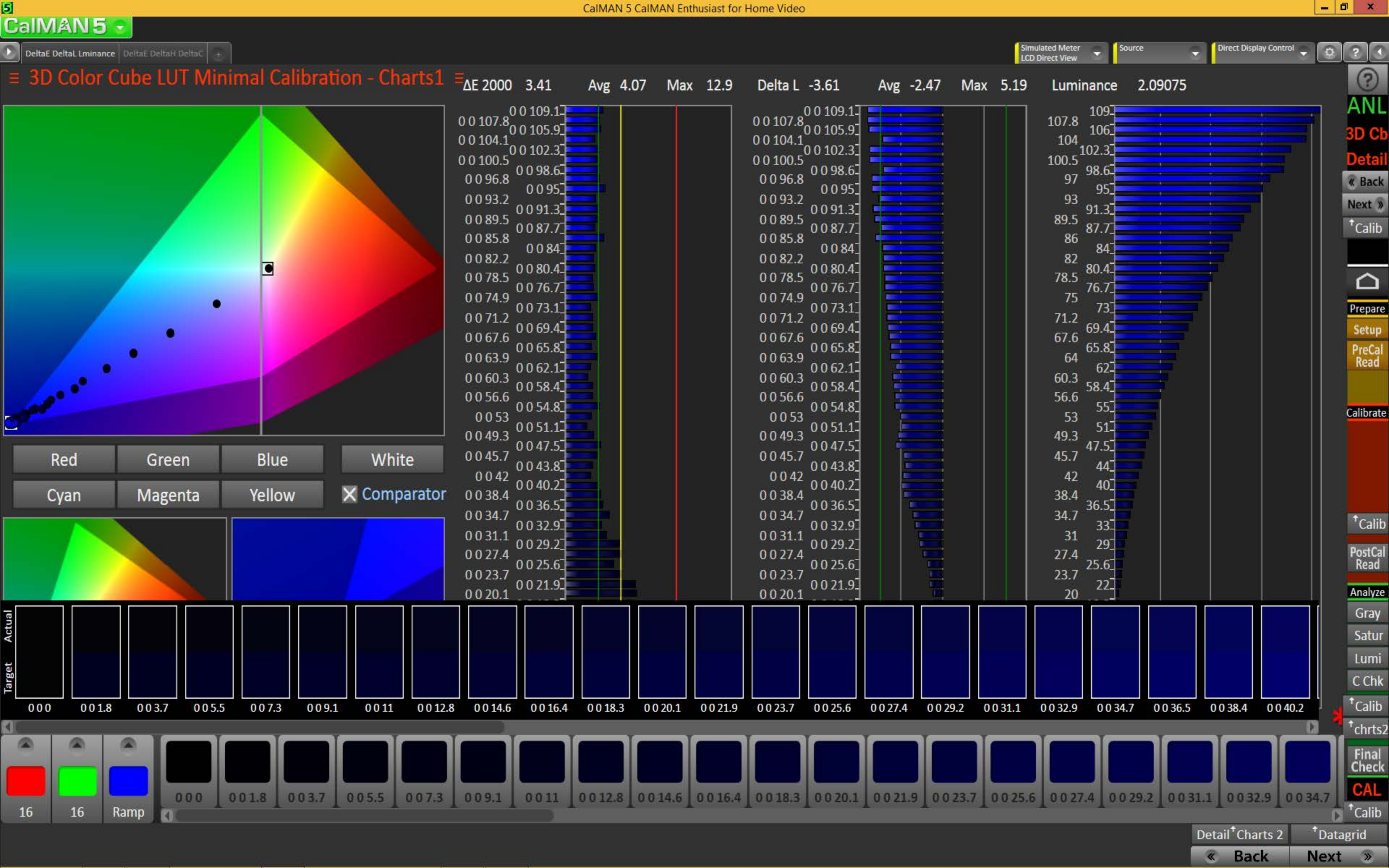
■ Notes



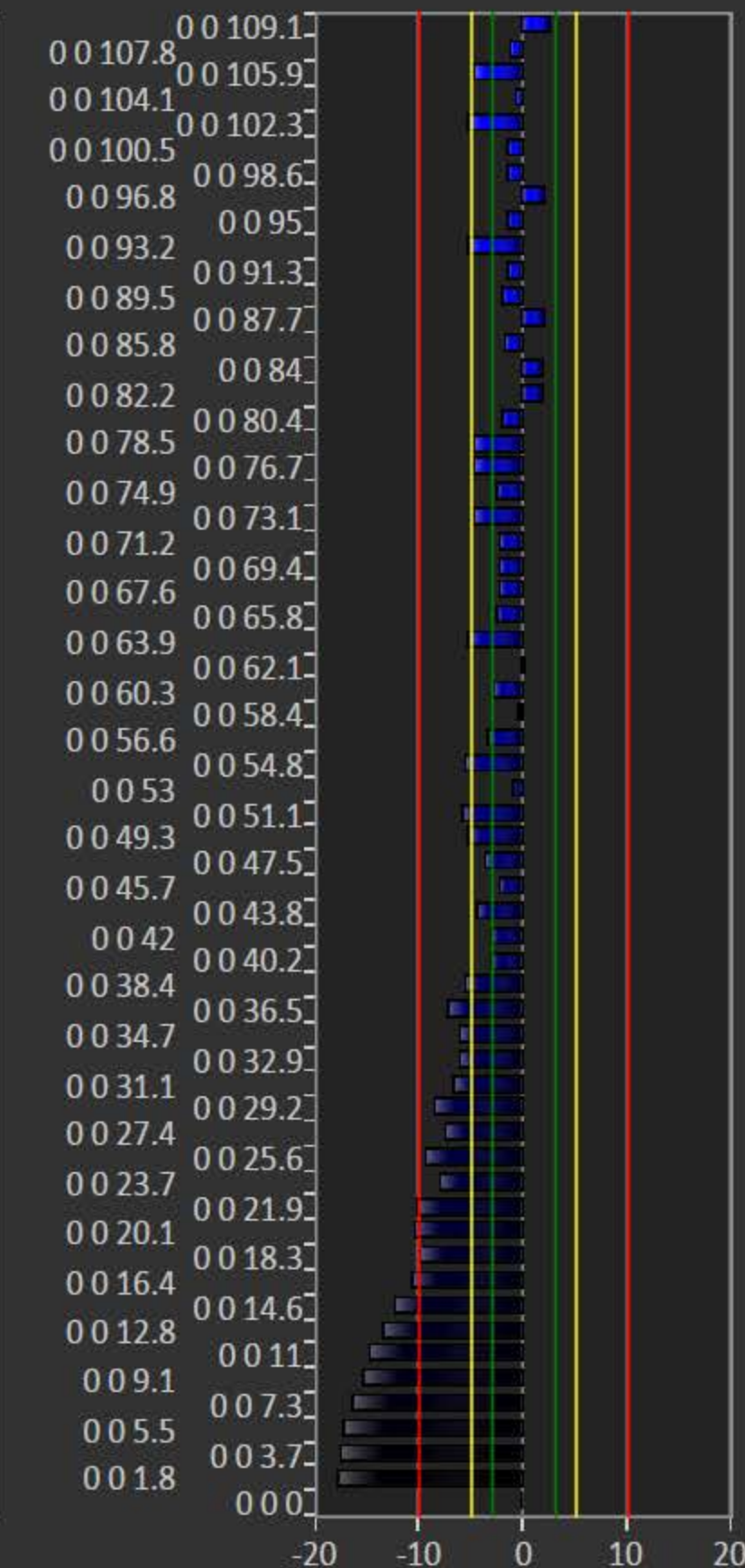
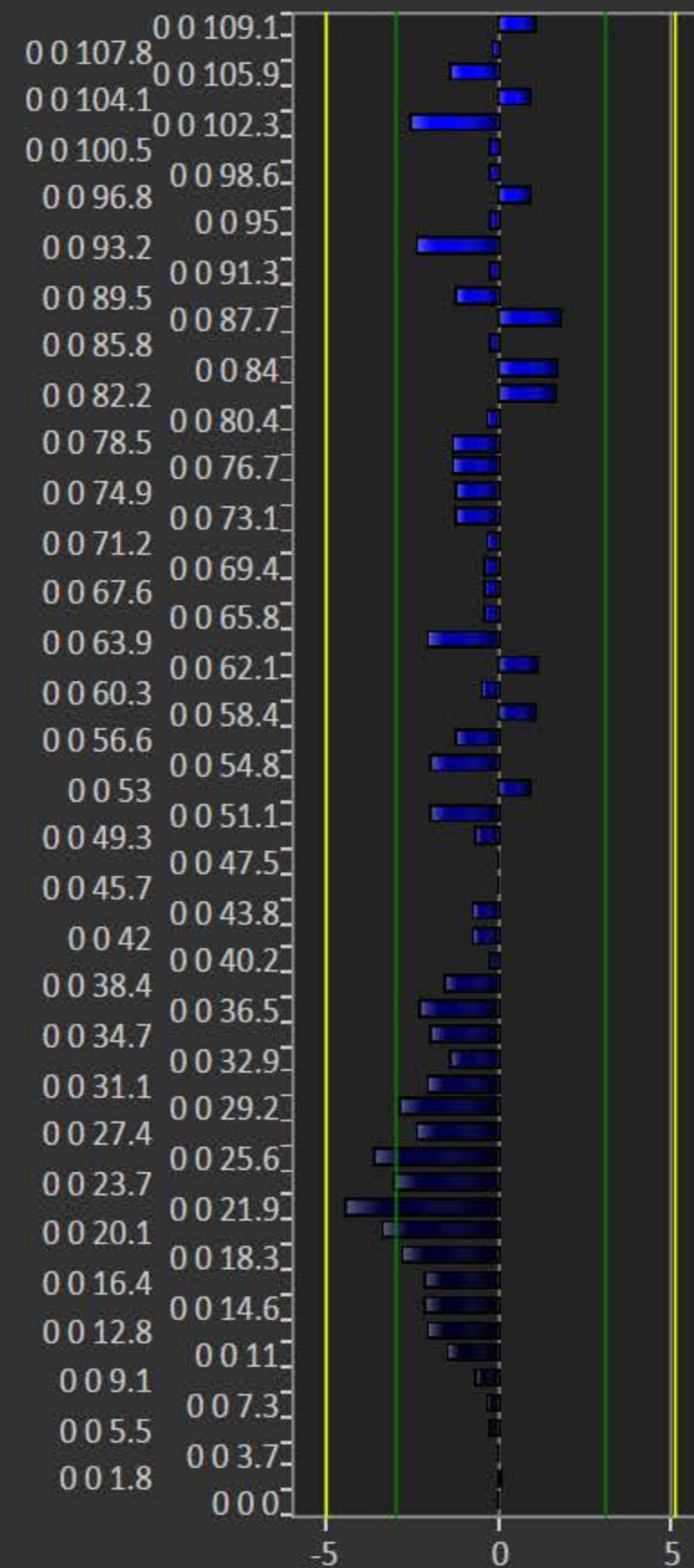
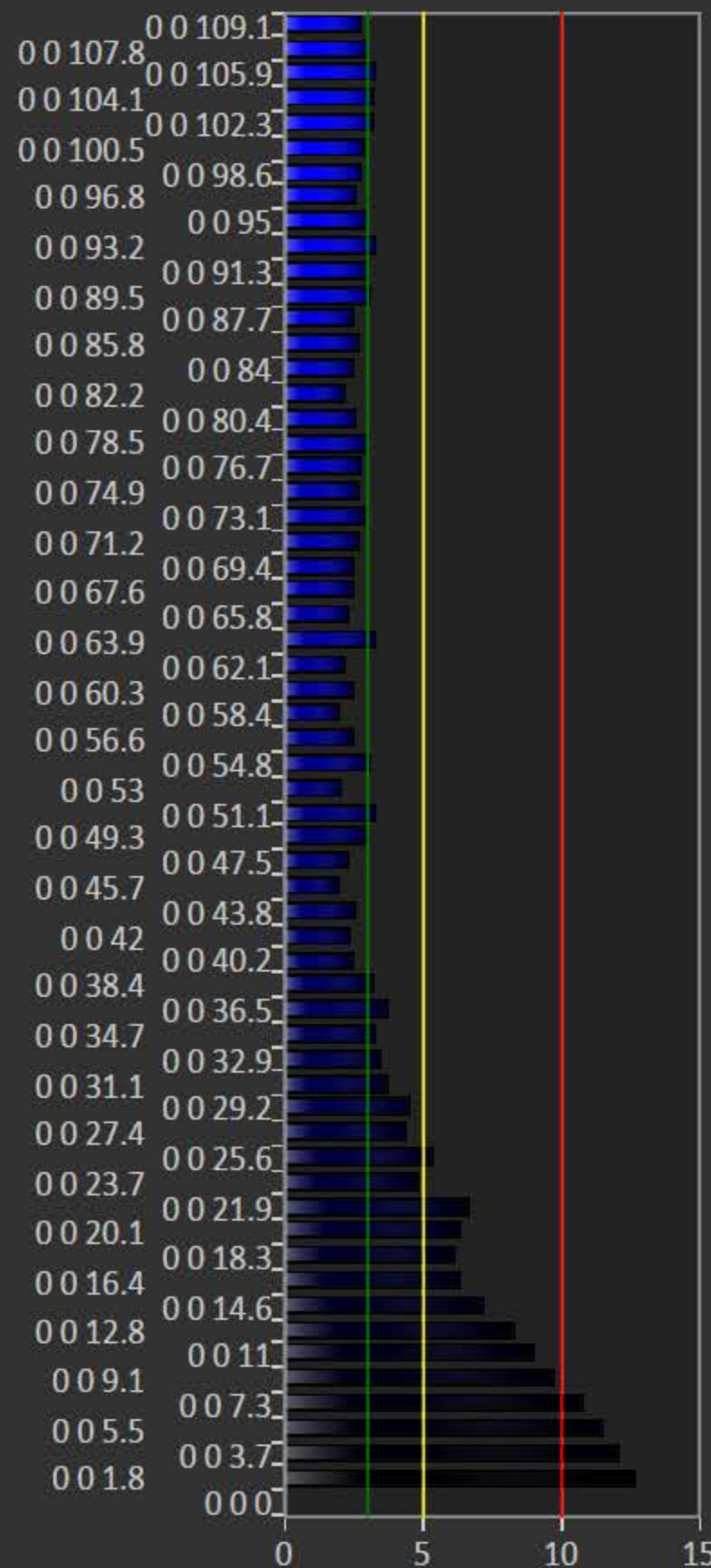
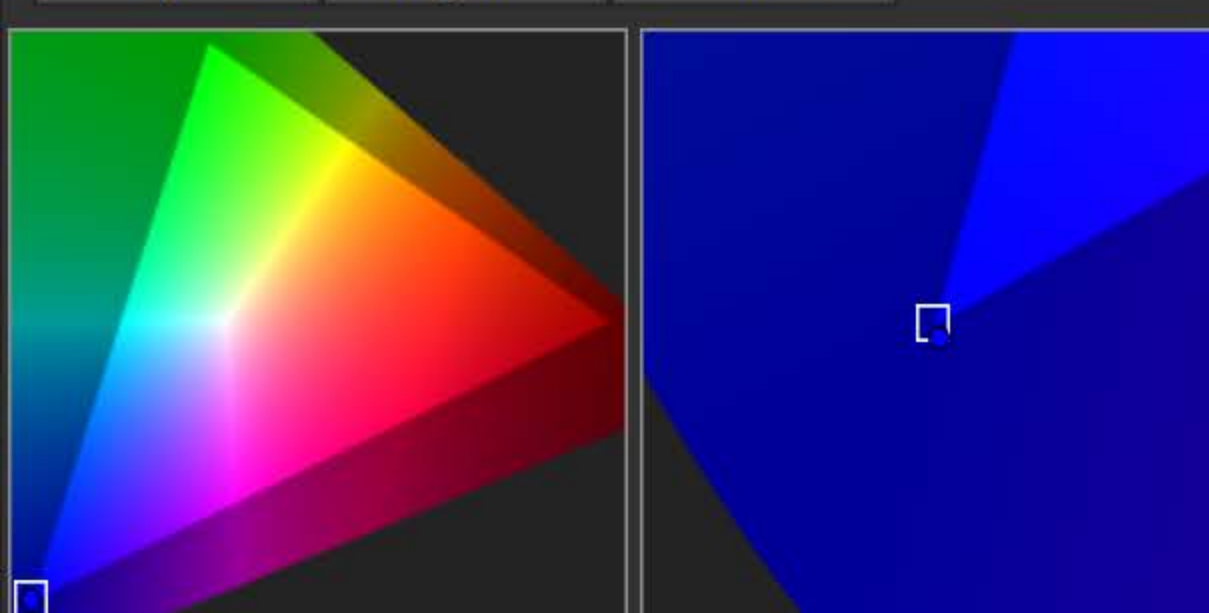








ΔE 2000	2.85	Avg	4.16	Max	12.7	Delta H	1.05	Avg	-0.69	Max	2.76	Delta C	2.66	Avg	-11.2	Max	17.81
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Color

Color:

Alpha: 16

Ramp:

000 001.8 003.7 005.5 007.3 009.1 0011 0012.8 0014.6 0016.4 0018.3 0020.1 0021.9 0023.7 0025.6 0027.4 0029.2 0031.1 0032.9 0034.7

?
 ANL
 3D C
 Detail
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 Final
 Check
 CAL
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CalMAN 5

Final Check

Simulated Meter
LCD Direct View

Source

Direct Display Control

Session Final Check

12/28/2014 Calibration

AV Mode - ISF Day

Contrast Verification

Data Points: select Clipping or Clipping with Peak White:

1 Adjust the Backlight, Brightness and Contrast controls to optimize the white level so it doesn't clip any of the primaries.

Gamma Level Verification

Data Points: select a full set of grayscale points, e.g. 11: 23 Point 5% step 0-109%

2 Check / adjust the gamma level across the full grayscale. Use the Backlight, Brightness, Contrast and Gamma controls to make this adjustment.

1

Luminance



100

Gamma 2.4

24.27164 fL

2

Gamma Point



Post-Calibration Notes

Big

Contrast

Brightness

Backlight

TV Gamma

Color

Tint

Red

Green

Blue

Gain

Cut

Notes Management

0

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25

30

35

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55

60

65

70

75

80

85

90

95

100

105

109

Back

Save

Post-Calibration Summary

Grayscale dE Avg 1.02 Max 2.06

Saturation dE Avg 0.75 Max 2.94

Luminance dE Avg 1.45 Max 3.09

Color Checker dE Avg 1.84 Max 3.43

Color Cube LUT dE Avg 3.48 Full Max 4.3

Use Minimal layout data

LUT values come from calibration Full layout, or Minimal layout if checked

Gamma Target 2.4 Total 2.27

CCT Target 6503 Avg 6499

White 23.32 fL Black 0.02821 Cntr Ratio 827

ANL

Final Check

Back

Prepare

Setup

PreCal Read

DyRnge

Calibrate

Gray

Satur

Lumi

C Chk

3d Cb

PostCal Read

Analyze

Gray

Satur

Lumi

C Chk

3d Cb

Final Check

Final

CalMAN 5

Grayscale Datagrids

Simulated Meter
LCD Direct View

Source

Direct Display Control

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?

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Pre-Cal Multi-Point Grayscale Data

Pre-Cal

	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
RGB Triplet	27, 27, 27	38, 38, 38	49, 49, 49	60, 60, 60	71, 71, 71	82, 82, 82	93, 93, 93	104, 104, 104	115, 115, 115	126, 126, 126	136, 136, 136	147, 147, 147	158, 158, 158	169, 169, 169	180, 180, 180	191, 191, 191	202, 202, 202	213, 213, 213
RedIndex	27.0000	38.0000	49.0000	60.0000	71.0000	82.0000	93.0000	104.0000	115.0000	126.0000	136.0000	147.0000	158.0000	169.0000	180.0000	191.0000	202.0000	213.0000
GreenIndex	27.0000	38.0000	49.0000	60.0000	71.0000	82.0000	93.0000	104.0000	115.0000	126.0000	136.0000	147.0000	158.0000	169.0000	180.0000	191.0000	202.0000	213.0000
BlueIndex	27.0000	38.0000	49.0000	60.0000	71.0000	82.0000	93.0000	104.0000	115.0000	126.0000	136.0000	147.0000	158.0000	169.0000	180.0000	191.0000	202.0000	213.0000
X	0.3398	0.7886	1.5384	2.6035	3.7630	5.4618	7.5858	10.1609	12.9030	16.8470	19.8643	23.9812	28.1480	34.2030	40.5715	46.7875	52.4250	60.6267
Y cd/m²	0.3575	0.8401	1.6186	2.7392	4.0089	5.7466	8.0326	10.6227	13.6582	17.5056	20.7729	25.2315	29.6155	35.7574	42.7003	49.5260	55.8506	63.7674
Z	0.3893	0.9093	1.7625	2.9828	4.3389	6.2576	8.7957	11.5026	14.7003	19.1787	22.8853	27.4750	32.2488	38.7195	47.3037	53.3046	60.4492	68.2473
Xn 0-1	0.0042	0.0097	0.0189	0.0319	0.0462	0.0670	0.0930	0.1246	0.1583	0.2066	0.2436	0.2941	0.3452	0.4195	0.4976	0.5739	0.6430	0.7436
Yn 0-1	0.0044	0.0103	0.0199	0.0336	0.0492	0.0705	0.0985	0.1303	0.1675	0.2147	0.2548	0.3095	0.3632	0.4386	0.5237	0.6075	0.6850	0.7821
Zn 0-1	0.0048	0.0112	0.0216	0.0366	0.0532	0.0768	0.1079	0.1411	0.1803	0.2352	0.2807	0.3370	0.3955	0.4749	0.5802	0.6538	0.7414	0.8371
Stimulus Percent	0.0502	0.1005	0.1507	0.2009	0.2511	0.3014	0.3516	0.4018	0.4521	0.5023	0.5479	0.5982	0.6484	0.6986	0.7489	0.7991	0.8493	0.8995
RED Stim%:0-1	0.0502	0.1005	0.1507	0.2009	0.2511	0.3014	0.3516	0.4018	0.4521	0.5023	0.5479	0.5982	0.6484	0.6986	0.7489	0.7991	0.8493	0.8995
GRN Stim%:0-1	0.0502	0.1005	0.1507	0.2009	0.2511	0.3014	0.3516	0.4018	0.4521	0.5023	0.5479	0.5982	0.6484	0.6986	0.7489	0.7991	0.8493	0.8995
BLU Stim%:0-1	0.0502	0.1005	0.1507	0.2009	0.2511	0.3014	0.3516	0.4018	0.4521	0.5023	0.5479	0.5982	0.6484	0.6986	0.7489	0.7991	0.8493	0.8995

Post-Cal Multi-Point Grayscale Data

Post-Cal

	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85
RGB Triplet	16, 16, 16	27, 27, 27	38, 38, 38	49, 49, 49	60, 60, 60	71, 71, 71	82, 82, 82	93, 93, 93	104, 104, 104	115, 115, 115	126, 126, 126	136, 136, 136	147, 147, 147	158, 158, 158	169, 169, 169	180, 180, 180	191, 191, 191	202, 202, 202
RedIndex	16.0000	27.0000	38.0000	49.0000	60.0000	71.0000	82.0000	93.0000	104.0000	115.0000	126.0000	136.0000	147.0000	158.0000	169.0000	180.0000	191.0000	202.0000
GreenIndex	16.0000	27.0000	38.0000	49.0000	60.0000	71.0000	82.0000	93.0000	104.0000	115.0000	126.0000	136.0000	147.0000	158.0000	169.0000	180.0000	191.0000	202.0000
BlueIndex	16.0000	27.0000	38.0000	49.0000	60.0000	71.0000	82.0000	93.0000	104.0000	115.0000	126.0000	136.0000	147.0000	158.0000	169.0000	180.0000	191.0000	202.0000
X	0.0950	0.3489	0.8362	1.5889	2.5370	3.8102	5.6074	7.5885	10.0317	13.0645	15.9806	19.6173	24.1279	28.7315	33.3059	39.7887	46.1490	53.0832
Y cd/m²	0.1006	0.3648	0.8744	1.6510	2.6855	4.0089	5.8639	8.0326	10.6227	13.6582	16.8191	20.7729	25.2315	30.2198	35.0423	41.8630	48.5549	55.8506
Z	0.1101	0.3950	0.9633	1.8088	2.8904	4.3653	6.4602	8.6455	11.6318	14.7896	18.6323	22.7462	27.7973	32.3429	38.1581	45.5854	52.8722	60.8167
Xn 0-1	0.0011	0.0042	0.0101	0.0191	0.0305	0.0458	0.0674	0.0913	0.1206	0.1571	0.1922	0.2359	0.2901	0.3455	0.4005	0.4785	0.5549	0.6383
Yn 0-1	0.0012	0.0044	0.0105	0.0199	0.0323	0.0482	0.0705	0.0966	0.1277	0.1642	0.2022	0.2498	0.3034	0.3634	0.4214	0.5034	0.5839	0.6716
Zn 0-1	0.0013	0.0048	0.0116	0.0218	0.0348	0.0525	0.0777	0.1040	0.1399	0.1778	0.2241	0.2735	0.3343	0.3889	0.4588	0.5482	0.6358	0.7313
Stimulus Percent	0.0000	0.0502	0.1005	0.1507	0.2009	0.2511	0.3014	0.3516	0.4018	0.4521	0.5023	0.5479	0.5982	0.6484	0.6986	0.7489	0.7991	0.8493
RED Stim%:0-1	0.0000	0.0502	0.1005	0.1507	0.2009	0.2511	0.3014	0.3516	0.4018	0.4521	0.5023	0.5479	0.5982	0.6484	0.6986	0.7489	0.7991	0.8493
GRN Stim%:0-1	0.0000	0.0502	0.1005	0.1507	0.2009	0.2511	0.3014	0.3516	0.4018	0.4521	0.5023	0.5479	0.5982	0.6484	0.6986	0.7489	0.7991	0.8493
BLU Stim%:0-1	0.0000	0.0502	0.1005	0.1507	0.2009	0.2511	0.3014	0.3516	0.4018	0.4521	0.5023	0.5479	0.5982	0.6484	0.6986	0.7489	0.7991	0.8493

Click Change Selection then right-click on either datagrid chart (ESCAPE the context menu) to show possible selections

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CalMAN 5

Saturation Datagrids

Simulated Meter
LCD Direct View

Source

Direct Display Control

?

?

?

Pre-Cal Saturation Sweeps Data

	0	100
RGB Triplet	16, 16, 16	235, 235, 235
Target x:CIE31	0.3127	0.3127
x: CIE31	0.3127	0.3127
Target y:CIE31	0.3290	0.3290
y: CIE31	0.3310	0.3310
Target Y	0.0288	23.7957
Y	0.0288	23.7957
Gamma Point: Flat	2.4000	2.4000
ΔE 2000	0.0480	1.6433
dE2000 LuminanceCompensated	0.0480	1.6433
ΔE 1994 L*:±	0.0000	0.0000
ΔE 1994 Sat:±	0.0360	1.2772
ΔE 1994 Hue:±	0.0000	0.0000
Signed dE94 L LuminanceCompensated	0.0000	0.0000
Signed dE94 C LuminanceCompensated	0.0360	1.2772
Signed dE94 H LuminanceCompensated	0.0000	0.0000

Post-Cal Saturation Sweeps Data

	25%	50%	75%	100%
RGB Triplet	180, 123, 123	180, 90, 90	180, 64, 64	180, 16, 16
Target x:CIE31	0.3931	0.4722	0.5472	0.6400
x: CIE31	0.3933	0.4773	0.5471	0.6364
Target y:CIE31	0.3293	0.3295	0.3297	0.3300
y: CIE31	0.3293	0.3295	0.3277	0.3320
Target Y	6.6677	4.5492	3.4999	2.7265
Y	6.3115	4.2128	3.3234	2.6733
Gamma Point: Flat	5.7746	7.7219	8.8643	9.9129
ΔE 2000	1.2420	1.6836	1.0960	0.5269
dE2000 LuminanceCompensated	0.0274	0.4701	0.4553	0.3106
ΔE 1994 L*:±	-1.3675	-1.6781	-1.0401	-0.3666
ΔE 1994 Sat:±	-0.4454	0.2082	-0.8125	-1.8766
ΔE 1994 Hue:±	0.0081	0.2135	-0.7905	0.2600
Signed dE94 L LuminanceCompensated	0.0000	0.0000	0.0000	0.0000
Signed dE94 C LuminanceCompensated	0.0582	1.3891	0.2494	-1.3230
Signed dE94 H LuminanceCompensated	0.0081	0.2108	-0.7837	0.2591

Pre-Cal

Click Change Selection then right-click on either datagrid chart (ESCAPE the context menu) to show possible selections

Post-Cal

Change Selection

0

100

25%

50%

75%

100%

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PostCal

Prepare

PreCal Read

Calibrate

Satur

PostCal Read

Datagrid

Gray

Satur

Lumi

C Chk

Final Check

Notes

GRD

CalMAN 5

Color Check Datagrids

Simulated Meter
LCD Direct View

Source

Direct Display Control

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Pre-Cal Color Checker Data

Pre-Cal

	White	Gray 80	Gray 65	Gray 50	Gray 35	Dark Skin	Light Skin	Blue Sky	Foliage	Blue Flower	Bluish Green	Orange	Purplish Blue	Moderate Red	Purple	Yellow Gre
RGB Triplet	235, 235, 235	213, 213, 213	196, 196, 196	176, 176, 176	152, 152, 152	115, 86, 73	182, 145, 128	97, 121, 150	93, 108, 73	128, 126, 167	101, 178, 161	202, 119, 51	80, 95, 156	182, 88, 99	95, 69, 108	152, 176,
Target x:CIE31	0.3127	0.3127	0.3127	0.3127	0.3127	0.4154	0.3845	0.2442	0.3430	0.2646	0.2593	0.5260	0.2083	0.4790	0.2855	0.3781
x: CIE31	0.3147	0.3107	0.3107	0.3107	0.3127	0.4003	0.3793	0.2475	0.3398	0.2661	0.2618	0.5132	0.2166	0.4653	0.2916	0.3756
Target y:CIE31	0.3290	0.3290	0.3290	0.3290	0.3290	0.3662	0.3580	0.2593	0.4398	0.2460	0.3624	0.4054	0.1782	0.3124	0.2084	0.5025
y: CIE31	0.3310	0.3270	0.3290	0.3310	0.3270	0.3640	0.3582	0.2654	0.4277	0.2520	0.3622	0.4073	0.1912	0.3131	0.2213	0.4935
Target Y	23.7957	18.4566	14.8623	11.2027	7.5845	1.9224	7.7240	3.9087	2.6026	4.9756	9.4147	6.2242	2.3239	3.9485	1.2173	9.6869
Y	23.7957	18.6114	14.8148	11.5508	7.8463	2.3188	8.1364	4.3504	2.9670	5.3131	9.9731	6.6093	2.7271	4.2426	1.5667	10.0495
Gamma Point: Flat	2.4000	2.3211	2.4163	2.3025	2.3288	2.9327	3.8731	3.4591	2.4005	4.0327	2.8845	7.8434	4.8416	6.2232	3.1368	2.7461
ΔE 2000	1.1255	1.0511	1.3664	2.4368	1.3746	2.9806	1.5801	2.5308	2.3365	1.9241	1.3151	1.7720	2.8005	1.7830	2.9716	1.0977
dE2000 LuminanceCompensated	1.1255	1.0347	1.3645	2.3405	1.1492	1.9550	1.2271	1.3117	1.3216	1.4523	0.5165	1.4246	1.9270	1.2562	1.8009	0.9362
ΔE 1994 L*:±	0.0000	0.2971	-0.1058	0.9252	0.9014	3.2342	1.3942	2.3080	2.4771	1.5226	1.6513	1.4995	2.9260	1.5446	3.7789	1.0596
ΔE 1994 Sat:±	1.1535	1.0578	0.9673	1.6643	0.8822	-1.8882	-1.2393	-1.0471	-1.6591	-1.9337	-0.4770	-3.3464	-3.0301	-2.6492	-1.5459	-2.7978
ΔE 1994 Hue:±	0.0000	0.0000	0.0000	0.0000	0.0000	0.5966	0.8655	-0.9835	0.2445	-0.9542	-0.3698	1.3073	-0.7864	-0.6475	0.4549	0.2657
Signed dE94 L LuminanceCompensated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Post-Cal Color Checker Data

Post-Cal

	White	Gray 80	Gray 65	Gray 50	Gray 35	Dark Skin	Light Skin	Blue Sky	Foliage	Blue Flower	Bluish Green	Orange	Purplish Blue	Moderate Red	Purple	Yellow Gre
RGB Triplet	235, 235, 235	213, 213, 213	196, 196, 196	176, 176, 176	152, 152, 152	115, 86, 73	182, 145, 128	97, 121, 150	93, 108, 73	128, 126, 167	101, 178, 161	202, 119, 51	80, 95, 156	182, 88, 99	95, 69, 108	152, 176,
Target x:CIE31	0.3127	0.3127	0.3127	0.3127	0.3127	0.4154	0.3845	0.2442	0.3430	0.2646	0.2593	0.5260	0.2083	0.4790	0.2855	0.3781
x: CIE31	0.3107	0.3127	0.3127	0.3147	0.3107	0.4023	0.3793	0.2515	0.3398	0.2681	0.2598	0.5112	0.2166	0.4653	0.2896	0.3736
Target y:CIE31	0.3290	0.3290	0.3290	0.3290	0.3290	0.3662	0.3580	0.2593	0.4398	0.2460	0.3624	0.4054	0.1782	0.3124	0.2084	0.5025
y: CIE31	0.3270	0.3270	0.3290	0.3290	0.3290	0.3620	0.3582	0.2634	0.4277	0.2540	0.3582	0.4053	0.1932	0.3151	0.2233	0.4935
Target Y	23.3198	18.0875	14.5651	10.9786	7.4328	1.8839	7.5695	3.8306	2.5506	4.8761	9.2264	6.0998	2.2775	3.8696	1.1929	9.4932
Y	23.3198	18.2391	15.1171	11.7818	8.1665	2.3188	8.1364	4.2634	3.0276	5.3131	9.9731	6.6093	2.6726	4.3291	1.5980	10.2505
Gamma Point: Flat	2.4000	2.3211	2.2103	2.1751	2.2024	2.9073	3.8001	3.4591	2.3539	3.9784	2.8175	7.7197	4.8416	6.0773	3.0907	2.6186
ΔE 2000	1.1208	1.5308	0.8236	2.0116	2.3782	3.0846	1.9047	2.6700	2.9821	2.3124	1.8598	2.0748	3.0811	2.5445	3.5041	1.8658
dE2000 LuminanceCompensated	1.1208	1.5196	0.0049	1.2649	1.1324	1.5282	1.2295	1.5580	1.3289	1.6120	0.9046	1.4869	2.4278	1.3617	2.2442	1.1112
ΔE 1994 L*:±	0.0000	0.2971	1.2372	2.1490	2.5260	3.5949	1.9423	2.3080	3.2629	1.9981	2.2379	2.0109	2.9260	2.4299	4.4077	2.2279
ΔE 1994 Sat:±	1.1481	1.1765	0.0039	0.8962	0.7985	-1.3346	-1.0939	-0.9598	-1.3168	-2.4957	-0.7196	-4.0117	-3.9221	-2.5035	-2.2132	-2.1205
ΔE 1994 Hue:±	0.0000	0.0000	0.0000	0.0000	0.0000	-0.1798	0.8684	1.2989	0.2462	-0.6564	0.9515	0.5087	-1.4305	0.0727	-0.1577	1.0536
Signed dE94 L LuminanceCompensated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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