



Calibration Report

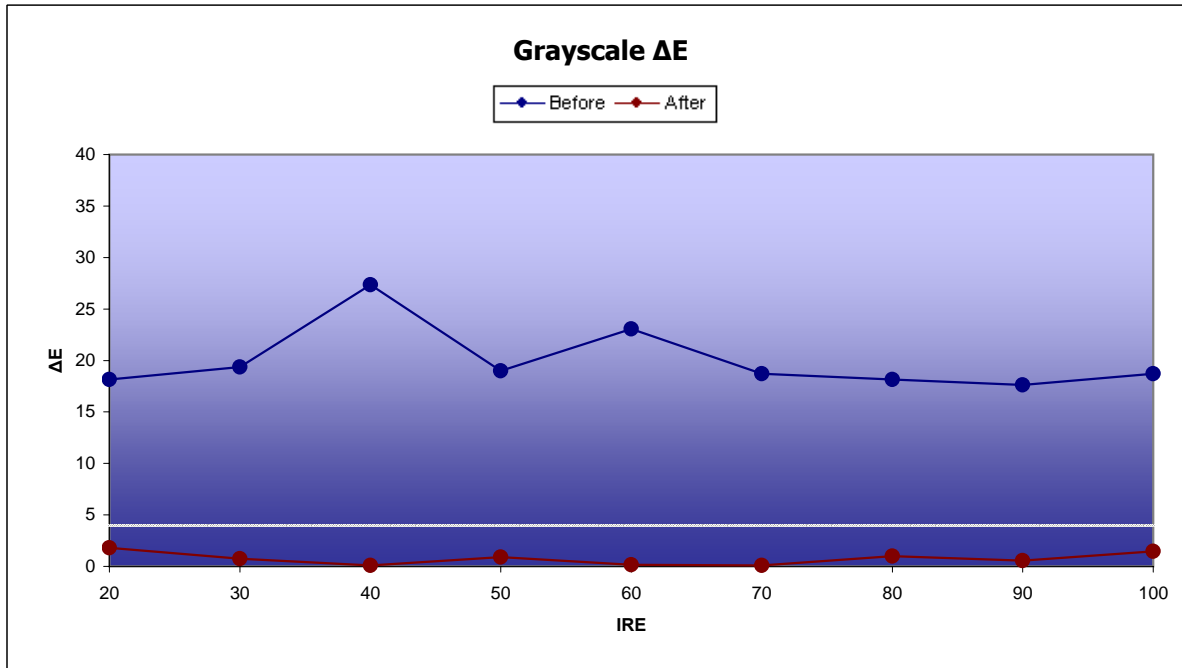
Client: Client Name
Display: Display Name

Gray Scale Performance

This chart displays the color of white across the entire range of brightness (also known as the grayscale) in raw xy data and Delta-E. White is defined as x0.3127, y0.329. Delta E (dE or ΔE) is a measurement of deviation from a color standard. The smaller the number, the less the deviation from the standard. ΔE for white should not rise above 4-5. This also shows Correlated Color Temperature (CCT), which is a less precise measurement of the color of white. The target is 6505. Higher than 6505 is too blue. Lower is too red.

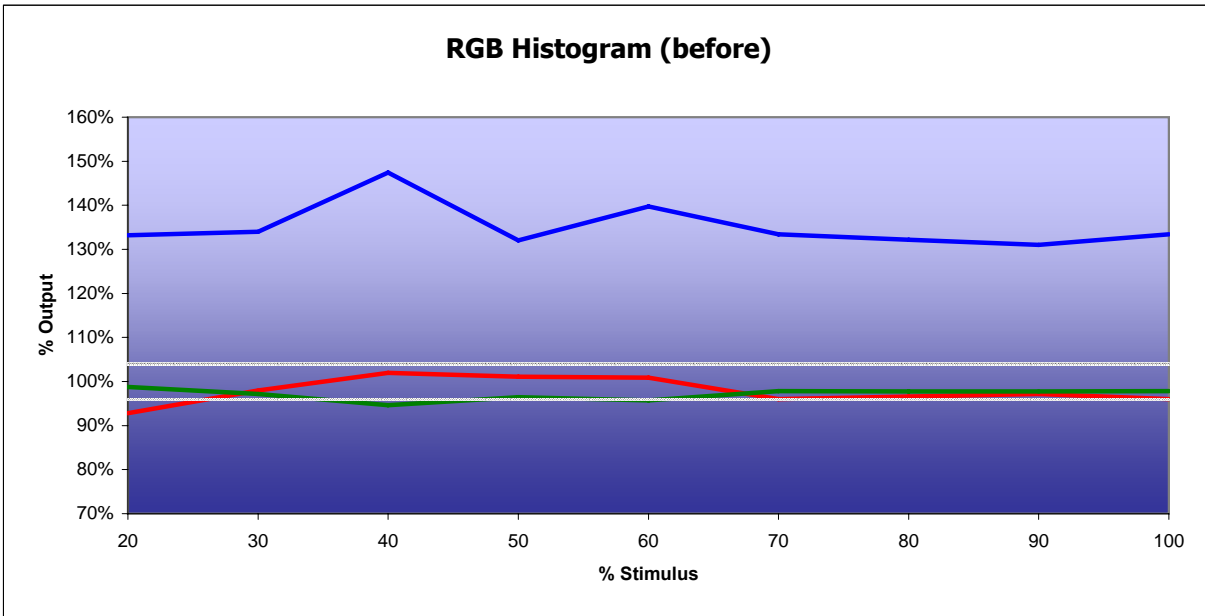
Color Difference Model: CIELAB
Error Tolerance: 4.0

Before Calibration				After Calibration					
	x	y	ΔE	CCT		x	y	ΔE	CCT
20	0.289	0.296	18.1	8746	20	0.314	0.327	1.8	6438
30	0.292	0.294	19.4	8547	30	0.311	0.329	0.7	6574
40	0.288	0.281	27.3	9471	40	0.313	0.329	0.1	6499
50	0.295	0.295	19.0	8254	50	0.313	0.328	0.9	6500
60	0.291	0.288	23.1	8854	60	0.313	0.329	0.2	6494
70	0.291	0.295	18.7	8603	70	0.313	0.329	0.1	6496
80	0.292	0.296	18.2	8483	80	0.312	0.330	1.0	6553
90	0.293	0.297	17.6	8366	90	0.312	0.328	0.6	6573
100	0.291	0.295	18.7	8603	100	0.311	0.330	1.5	6589
	Ave.		20.0	2966 +		Ave.		0.8	84 +
				0 -					67 -

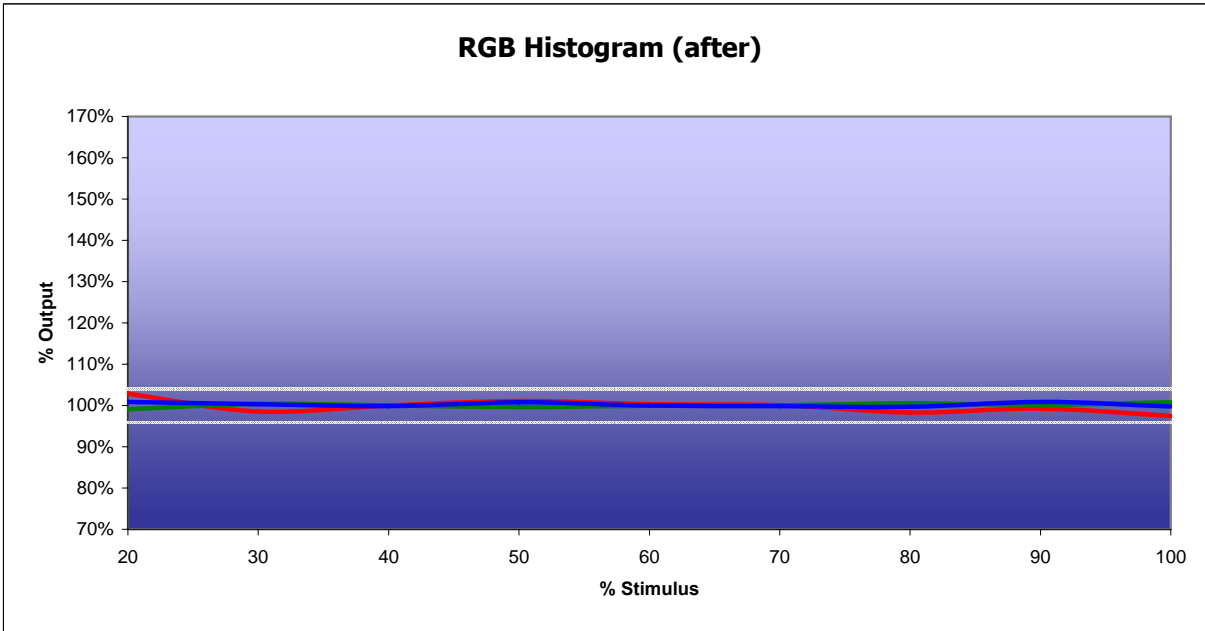


RGB Histogram Chart

This chart also displays gray scale performance as above, but breaks out the contributions of red, green, and blue. Ideally, all three colors should be equal at 100% across the entire range.



	20	30	40	50	60	70	80	90	100	Ave.
R	92.8%	97.9%	102.0%	101.1%	100.8%	96.0%	96.6%	97.2%	96.0%	97.8%
G	98.8%	97.2%	94.6%	96.4%	95.7%	97.8%	97.8%	97.7%	97.8%	97.1%
B	133.2%	134.0%	147.4%	132.1%	139.7%	133.4%	132.2%	131.0%	133.4%	135.2%



	20	30	40	50	60	70	80	90	100	Ave.
R	102.9%	98.5%	100.0%	101.1%	100.3%	100.1%	98.3%	99.2%	97.4%	99.7%
G	99.1%	100.4%	100.0%	99.6%	99.9%	100.0%	100.5%	100.1%	100.8%	100.1%
B	100.9%	100.3%	99.9%	100.8%	100.0%	99.8%	99.7%	100.9%	99.8%	100.2%

Chromaticity Performance

The raw data below shows the display's ability to accurately reproduce the full spectrum of color as defined by the selected color difference model in ΔE units. CIELUV or CIELAB should be 4 or less. CIE94 should be 2.0 or less.

Rec. 709 Reference (HD)

Color Space: Rec. 709

	x	y	Y
R	0.6400	0.3300	0.2126
G	0.3000	0.6000	0.7152
B	0.1500	0.0600	0.0722
Y	0.4193	0.5053	0.9278
C	0.2246	0.3287	0.7874
M	0.3209	0.1542	0.2848
W	0.3127	0.3290	1.0000

Before Calibration

	x	y	Y	ΔE
R	0.663	0.333	0.176	14.7
G	0.294	0.644	0.680	17.1
B	0.148	0.060	0.054	14.1
Y	0.432	0.521	0.893	14.2
C	0.204	0.330	0.773	13.5
M	0.329	0.156	0.236	8.2
				13.6 Ave.

After Calibration

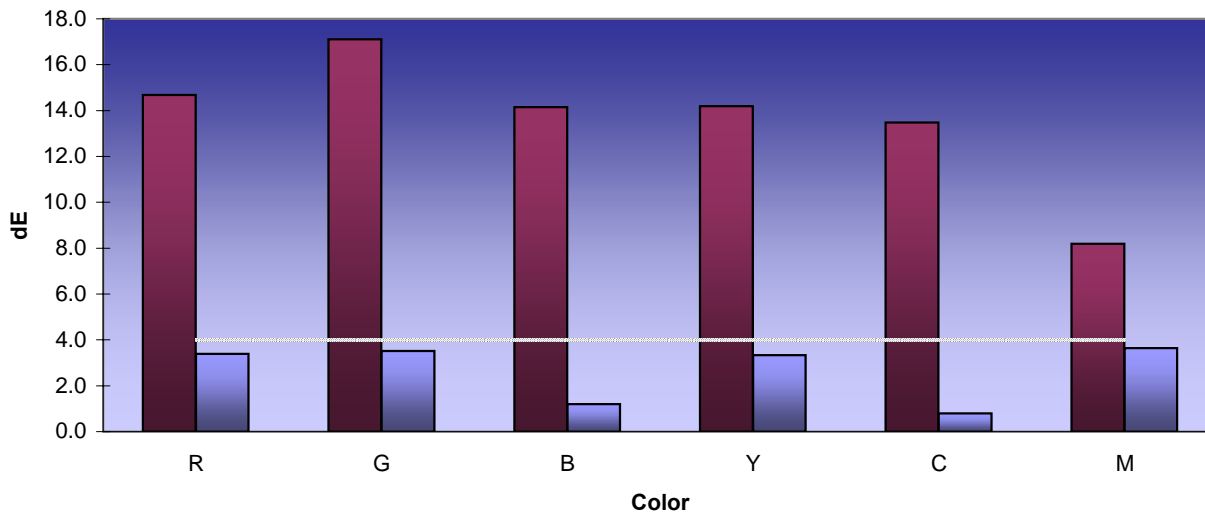
	x	y	Y	ΔE
R	0.639	0.334	0.222	3.4
G	0.298	0.608	0.718	3.5
B	0.148	0.060	0.072	1.2
Y	0.421	0.502	0.895	3.3
C	0.225	0.330	0.799	0.8
M	0.322	0.155	0.265	3.6
				2.6 Ave.

Color Difference Model: CIELAB

Error Tolerance: 4.0

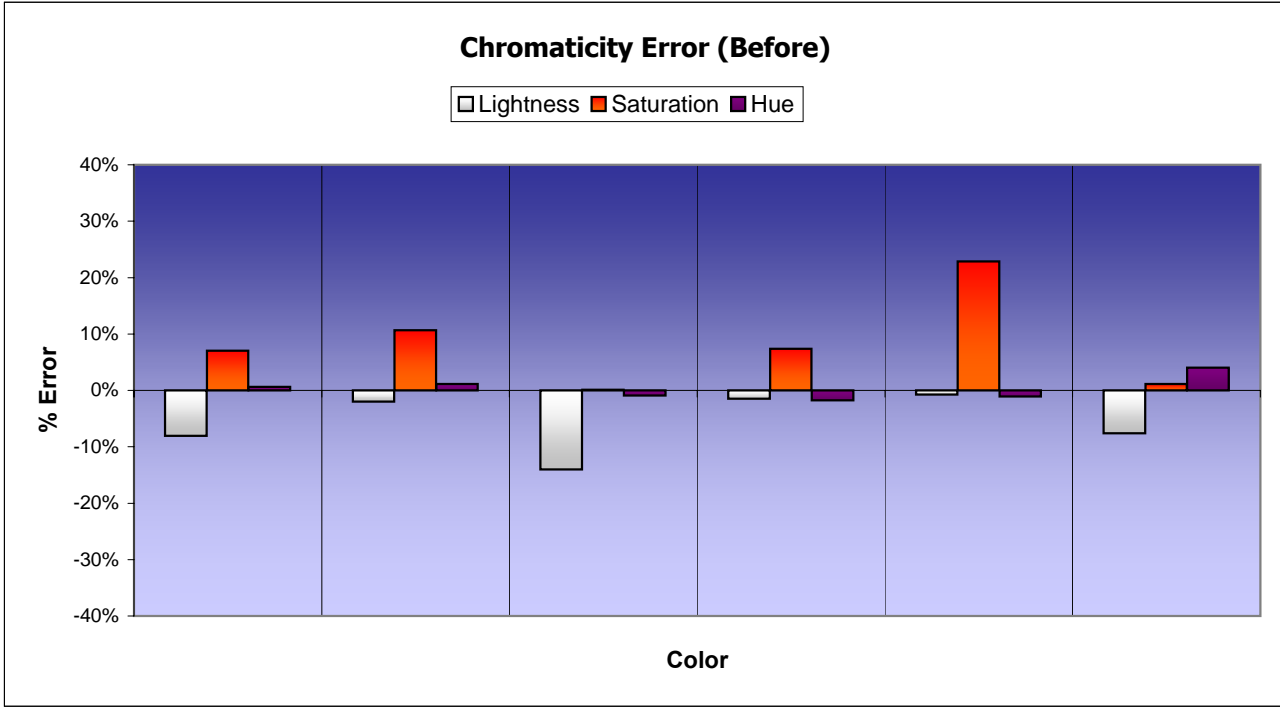
dE Primary/Secondary Colors

Before After Error Tolerance

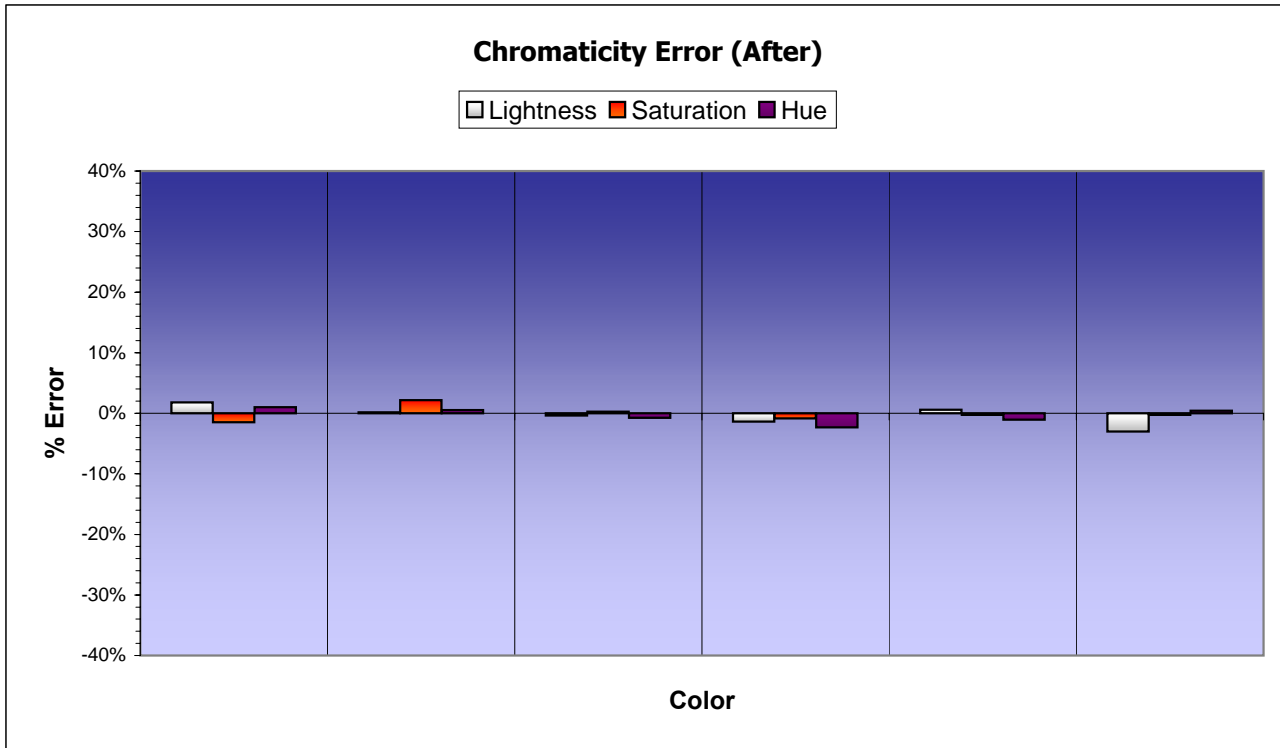


Lightness, Saturation, and Hue Error

These charts display the before/after chromaticity errors of the primary/secondary colors in terms of the three visible components of color: Lightness, Saturation, and Hue (LSH). Ideally, all primary and secondary colors should have no more than 2% error in any component.



Color	R	G	B	Y	C	M
Lightness	-8.0%	-2.0%	-14.0%	-1.5%	-0.7%	-7.6%
Saturation	7.0%	10.7%	0.1%	7.4%	22.9%	1.1%
Hue	0.6%	1.1%	-0.9%	-1.7%	-1.1%	4.0%

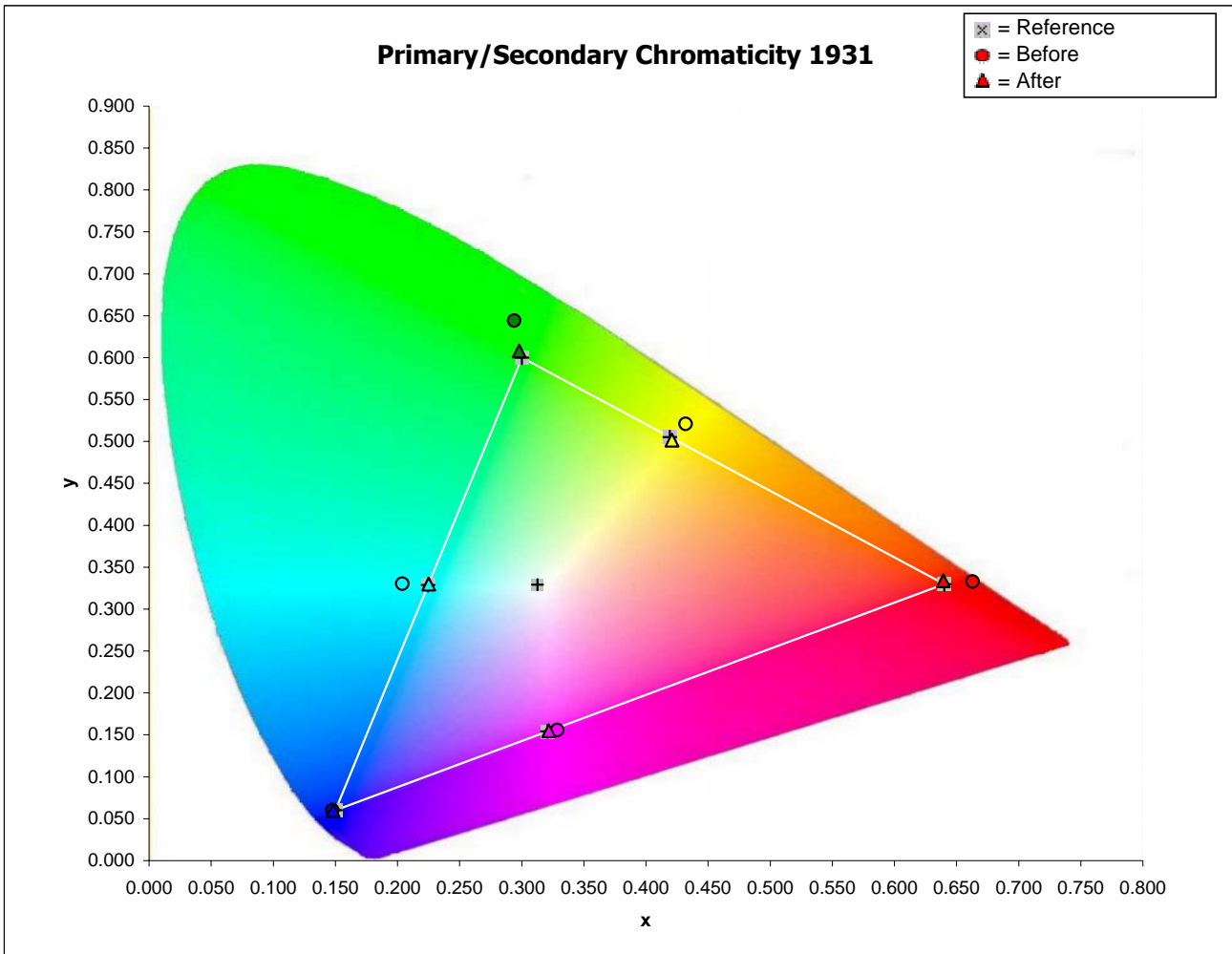


Color	R	G	B	Y	C	M
Lightness	1.8%	0.1%	-0.4%	-1.4%	0.6%	-3.0%
Saturation	-1.5%	2.2%	0.3%	-0.8%	-0.3%	-0.3%
Hue	1.0%	0.5%	-0.7%	-2.3%	-1.1%	0.4%

CIE Chart

Color Space: Rec. 709

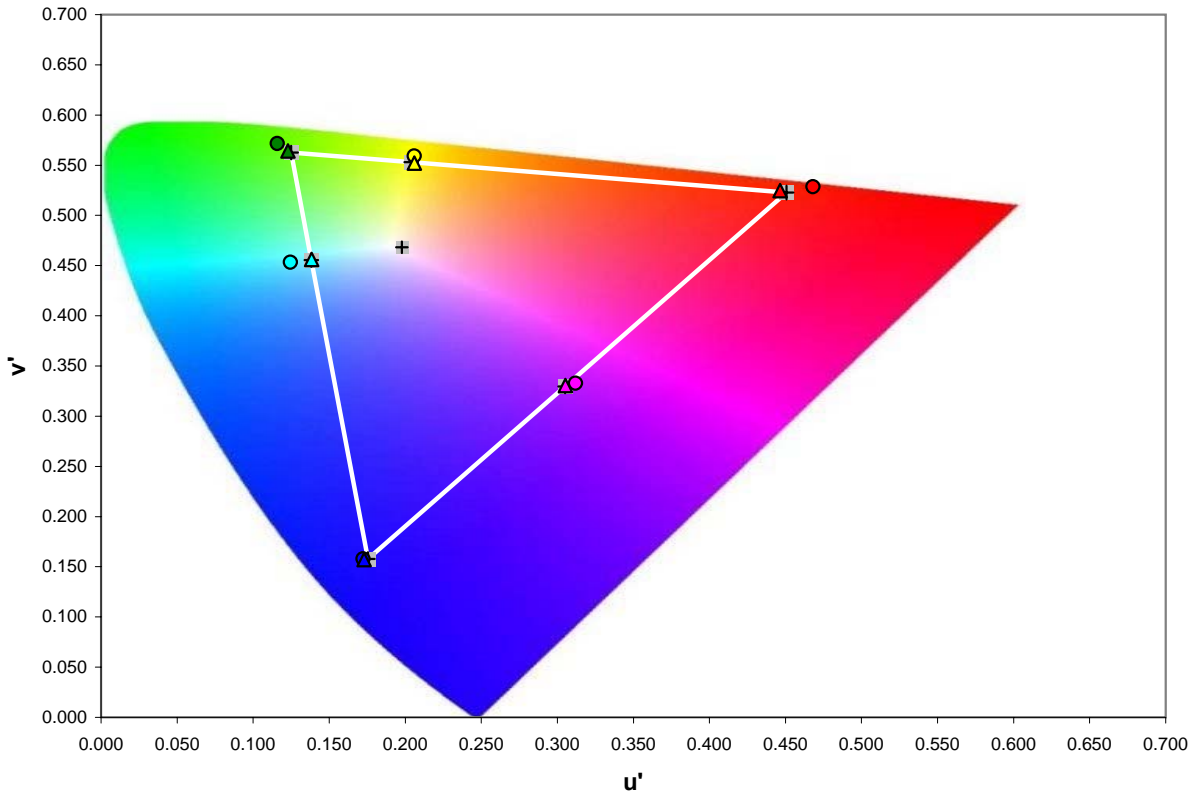
This chart graphically maps the accuracy of the display's color saturation and hue relative to the chosen standard (Rec. 709 for HD or SMPTE-C for SD). The closer the "After" symbols are to the reference points, the more accurate the color. There are 2 chromaticity charts, one showing before/after performance based on the 1931 standard and another based on the 1976 standard, which is less well known, but more perceptually uniform.



The CIE (Commission Internationale de L'Eclairage or "International Commission on Illumination") establishes standards for color performance, uses these charts as a way of visually representing saturation and hue. The third component of color (brightness or lightness) is not represented on these charts, so they provide incomplete, but useful information.

Primary/Secondary Chromaticities 1976

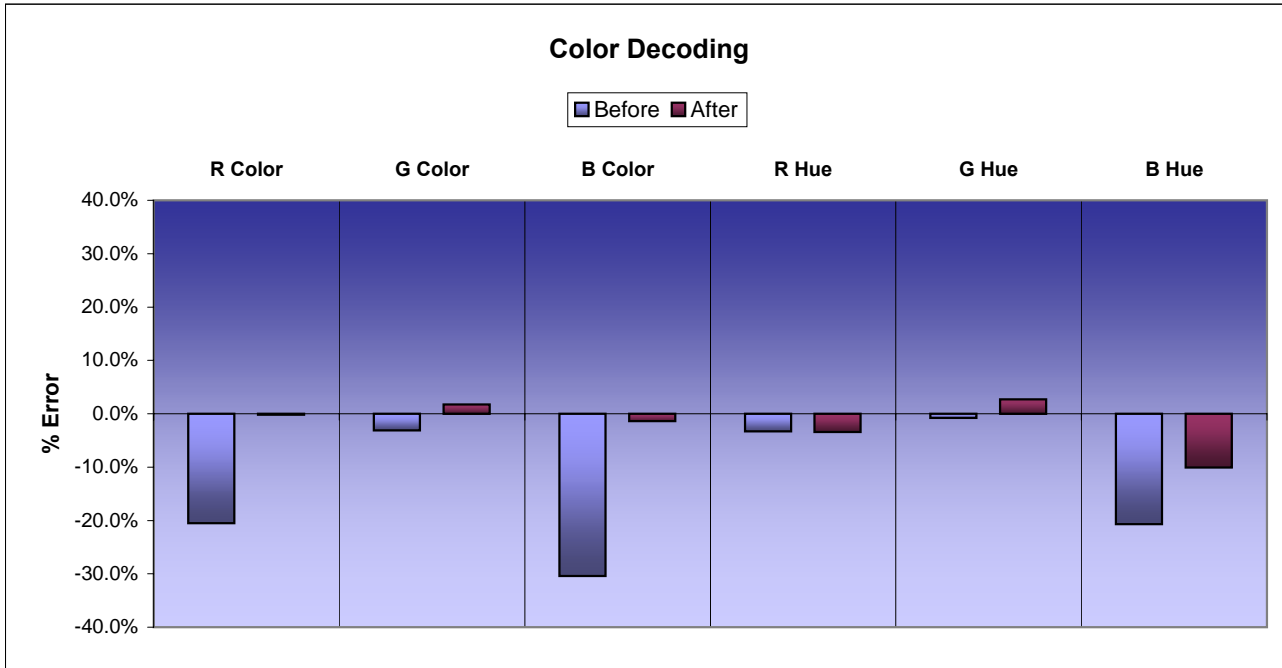
⊗ = Reference
 ● = Before
 ▲ = After



	R	G	B	Y	C	M	W	
u'	0.451	0.125	0.175	0.204	0.138	0.305	0.198	
v'	0.523	0.563	0.158	0.553	0.455	0.330	0.468	Reference
u'	0.468	0.116	0.172	0.206	0.125	0.312	0.194	
v'	0.528	0.572	0.158	0.559	0.453	0.333	0.446	Before
u'	0.446	0.123	0.173	0.206	0.138	0.305	0.200	
v'	0.525	0.564	0.157	0.552	0.456	0.331	0.468	After

Color Decoding

The display's color decoder determines its ability to reproduce the proper brightness of the primary colors and the proper hue of the secondary colors.



	R Color	G Color	B Color	R Hue	G Hue	B Hue	Ave.
Before	-20.5%	-3.1%	-30.4%	-3.3%	-0.8%	-20.7%	13.1%
After	-0.2%	1.8%	-1.4%	-3.4%	2.7%	-10.1%	3.3%

Gamma

Gamma describes the rate at which output increases with increasing signal input. This is not a one-to-one relationship. If gamma is too high, the image will darken and shadow detail will suffer. If it is too low, contrast and depth suffer.

Input	Output Target		Output Target		Gamma		Target Gamma	Peak Output (fL)	
	Before	Before	After	After	Before	After		Before	After
0%	0.150		0.050		2.17	2.23	2.25		
10%	1.050	0.87	0.730	0.70	2.10	2.21		45.2	36.5
20%	5.30	4.15	3.56	3.34	2.09	2.21			
30%	12.50	10.32	8.70	8.33	2.11	2.22			
40%	22.50	19.72	16.42	15.91	2.14	2.22			
50%	35.10	32.58	26.90	26.28	2.16	2.26			
60%	51.40	49.11	39.50	39.61	2.19	2.25			
70%	71.10	69.47	56.10	56.02	2.13	2.21			
80%	96.40	93.82	76.30	75.66	2.03	2.24			
90%	125.20	122.29	98.70	98.62	2.12	2.23			
100%	155.00	155.00	125.00	125.00					

Black (fL)	
Before	After
0.044	0.015

Contrast	
Before	After
1033	2500

