

UGRA

Display Analysis & Certification Tool

Report

Basics

Date: 2009-8-27 20:48:41
Report-Version: v1.3.1
Monitor-Name: \\.\DISPLAY1
EDID-Name: LCD2690WUXi
EDID-Serial: 72101938YB
Profile: C:/Windows/system32/.../Eizo-FX2431-UGRA-5800K-18-120cd-trc.icc
Created: 2009-8-27 20:38
Measurement device: eye-one display 2

Summary

The monitor has passed the certification according to the UGRA DACT specifications.

Calibration

White Point	yes
Gray balance	yes
Profile quality	yes

Softproofing

MultiColor, HighBody	yes
Offset/Gravure Paper Type 1/2	yes
Offset on uncoated paper	yes
Newspaper Printing	yes
sRGB	yes
AdobeRGB	yes
ECI-RGB	yes

Diagram



Whitepoint

The whitepoint should be as close as possible to the black body curve and the calibration target. The maximum allowed distance to the target whitepoint is DeltaE 2.0.

XYZ:	115.43 120.57 117.52
XYZ (normalized):	95.74 100.00 97.47
Luminance:	120.6 Cd/m2
Next Temperature:	5765 Kelvin
Assumed Target Whitepoint:	5800 Kelvin
Distance to assumed Target Whitepoint:	0.6 deltaE

Blackpoint

The blackpoint is not defined in ISO 12646. Therefore UDACT does only measure but not assess it.

Luminance:	0.1 Cd/m2
Chromaticity:	0.4 Chroma (Lab)

Gray balance

Average and maximum calculation will respect measurements with 1% minimum luminance only. The maximum allowed deviations to comply with this test are an average of DeltaC 1.0 and a range of DeltaC 2.0.

%	Kelvin	Cd/m2	L	Chroma	Gamma
0	7201	0.11	0.82	0.43	
5	6294	0.57	4.27	1.26	1.87
10	5824	1.73	12.20	0.28	1.87
15	5892	3.55	19.82	1.11	1.86
20	5582	6.22	27.18	0.78	1.86
25	5700	9.18	33.17	0.53	1.87
30	5700	13.00	39.21	0.45	1.86
35	5743	17.34	44.78	0.25	1.85
40	5802	22.47	50.26	0.27	1.84
45	5795	27.47	54.85	0.30	1.85
50	5755	33.12	59.41	0.07	1.87
55	5735	39.85	64.20	0.41	1.86
60	5796	46.91	68.68	0.23	1.85
65	5816	53.61	72.54	0.40	1.88
70	5767	61.96	76.92	0.07	1.87
75	5762	70.47	80.99	0.10	1.87
80	5737	79.57	85.00	0.40	1.88
85	5746	88.16	88.51	0.42	1.94
90	5753	99.13	92.67	0.66	1.89
95	5733	108.94	96.14	0.32	1.99
100	5765	120.57	100.00	0.00	
Average	5758			0.37	1.88
Range				1.76	
Max				1.11	

Tone values = 97.8%

Through the calibration of a display tone values can be lost. A display for the printing industry should show at least 95% of the incoming tone values.

Profile Quality

This test displays and measures RGB values and compares them with the transformation of the profile. The maximum allowed deviations to comply with this test are an average of DeltaE 3.0 and a maximum of DeltaE 6.0.

The assumed chromatic adaptation is: Bradford

RGB	Lab	deltaLab	deltaE
0 0 0	0.8 -0.4 -0.1	-0.8 0.4 0.1	0.9
0 0 128	17.3 28.2 -68.8	1.1 -1.5 -0.1	1.9
0 0 255	36.0 38.6 -104.1	-0.1 1.8 -0.0	1.8
0 128 0	47.3 -85.9 53.4	0.9 0.4 1.2	1.5
0 128 128	50.2 -58.9 -16.2	1.1 -0.3 0.7	1.4
0 170 255	66.7 -49.0 -53.6	0.7 0.3 1.2	1.5
0 255 0	80.7 -129.5 83.1	0.3 0.2 -0.5	0.6
0 255 170	82.9 -107.8 11.3	0.5 0.2 -0.1	0.6
0 255 255	85.4 -90.2 -23.9	0.4 0.7 0.5	0.9
85 85 85	43.2 -0.3 0.3	0.8 0.3 -0.3	0.9
128 0 0	36.3 60.1 53.4	0.4 0.5 2.3	2.4
128 0 128	40.4 62.1 -29.5	0.8 -0.7 -0.7	1.3
128 128 0	57.7 -7.9 67.2	0.6 1.0 1.1	1.6
128 128 128	59.9 -0.1 0.1	0.8 0.1 -0.1	0.8
128 128 255	65.6 12.8 -54.8	0.3 0.4 0.6	0.8
128 255 128	86.8 -68.7 38.3	0.4 -0.1 -0.2	0.5
170 0 255	56.5 73.6 -69.1	0.2 0.5 0.2	0.6
170 170 170	74.3 0.2 -0.2	0.6 -0.2 0.2	0.7
170 255 0	88.6 -53.5 93.8	0.4 0.5 -0.3	0.7
170 255 255	92.8 -35.7 -11.6	0.3 0.5 0.3	0.6
255 0 0	63.6 92.1 87.4	0.1 -0.4 -1.2	1.3
255 0 170	66.7 93.0 -9.4	0.4 -0.9 -1.0	1.4
255 0 255	70.3 92.8 -45.6	0.1 -0.0 -0.2	0.2
255 128 128	77.0 54.3 27.6	0.3 -0.5 -0.8	1.0
255 170 0	82.0 31.6 94.9	0.2 -0.1 -0.9	0.9
255 170 255	86.6 39.4 -20.0	0.2 0.1 -0.1	0.3
255 255 0	96.2 -10.2 104.5	0.2 -0.2 -1.2	1.3
255 255 170	97.8 -4.7 35.4	0.4 -0.5 -0.3	0.7
255 255 255	100.0 0.0 0.0	0.0 0.0 0.0	0.0
170 85 85	56.5 42.7 21.6	0.6 -0.3 -0.5	0.8
85 170 85	64.2 -54.4 30.0	0.8 0.2 0.0	0.8
85 85 170	47.3 11.2 -43.1	0.8 -0.8 0.5	1.2
85 170 170	66.5 -41.7 -12.8	0.8 -0.2 0.2	0.8
170 85 170	59.4 46.0 -22.9	0.6 -0.2 -0.1	0.6
170 170 85	72.3 -5.8 42.7	0.7 0.1 -0.1	0.7
Average			1.0
Maximum			2.4

Gamut-Volume

These measurements are only informative.

Gamut-Volume	
ISO	100 %
sRGB	94 %
AdobeRGB	94 %
ECI-RGB v1.0	94 %

ISO-Gamut

This test displays and measures Lab values and compares them with the reference. The maximum allowed deviations to comply with this test are an average of DeltaE 4.0 and a minimum Gamut volume of 90% for ISOcoated.

Reference	Lab	deltaLab
55.0 -37.0 -50.0	54.0 -36.9 -50.5	1.2
66.9 -24.7 -37.1	66.5 -25.8 -36.8	1.2
79.7 -12.5 -21.8	79.0 -12.8 -22.1	0.8
48.0 74.0 -3.0	47.9 72.5 -0.8	2.6
60.8 50.6 -6.7	60.1 51.0 -6.2	1.0
76.4 25.8 -6.9	76.0 24.8 -6.1	1.3
89.0 -5.0 93.0	88.9 -5.2 93.5	0.5
90.3 -4.7 62.6	90.2 -4.5 63.4	0.8
92.2 -3.5 31.1	92.1 -3.1 31.6	0.6
53.1 37.7 28.9	52.5 37.4 29.2	0.7
41.5 22.7 16.8	40.9 22.1 17.5	1.2
31.9 40.0 24.0	31.3 40.5 23.2	1.2
32.5 44.5 -1.8	31.9 44.7 -0.6	1.4
51.3 1.3 44.5	50.8 0.6 43.5	1.3
34.6 -36.4 13.9	33.9 -36.7 13.8	0.8
36.0 -26.2 -20.9	35.2 -25.3 -21.0	1.2
20.9 9.6 -23.6	19.7 11.0 -24.3	1.9
89.0 0.0 -1.9	88.3 0.0 -1.7	0.7
82.8 0.0 -1.7	82.2 -0.3 -1.4	0.7
69.3 0.0 -1.4	68.7 -0.5 -1.4	0.8
54.1 0.0 -1.0	53.4 -0.1 -1.3	0.8
36.6 0.0 -0.5	35.9 0.2 -0.2	0.8
16.0 0.0 0.0	15.4 1.5 -0.2	1.6
24.0 22.0 -46.0	23.1 22.7 -46.2	1.1
40.9 17.9 -36.6	40.2 18.6 -36.9	1.1
63.7 10.3 -23.8	62.7 10.6 -23.5	1.0
47.0 68.0 48.0	46.6 67.8 47.9	0.5
58.5 47.1 37.9	58.2 47.4 38.7	0.9
74.2 22.9 21.4	73.7 23.3 21.4	0.6
50.0 -65.0 27.0	49.4 -66.0 27.3	1.2
62.1 -39.8 21.0	61.7 -39.6 20.5	0.7
77.0 -19.1 11.0	76.3 -19.0 10.2	1.1
71.2 18.9 17.3	70.7 18.9 17.2	0.5
71.2 22.1 73.1	71.1 21.9 73.3	0.3
47.7 71.2 16.2	47.3 71.3 17.1	1.0
38.0 55.4 -20.9	37.3 56.1 -21.1	1.0
73.7 -22.8 67.6	73.1 -23.7 66.6	1.4
52.3 -52.3 -20.1	51.4 -52.3 -20.3	1.0
43.3 -17.0 -48.6	42.6 -16.5 -49.0	1.0
95.0 0.0 -2.0	94.8 0.1 -1.9	0.2
88.5 -0.4 -3.1	87.9 -0.4 -3.1	0.6
82.0 -0.9 -4.1	81.5 -1.4 -3.7	0.8
67.7 -2.0 -4.4	67.1 -2.4 -4.3	0.7
52.2 -2.5 -3.5	51.9 -3.4 -2.9	1.1
37.5 -3.9 -3.1	36.8 -3.1 -3.1	1.0
26.3 -6.8 -3.4	25.4 -7.1 -2.5	1.3
Average		1.0
Gamut-Volume		100 %

Measurement Data

This table lists all RGB measurements. The XYZ values represent the values from the measurement device.

RGB	XYZ	RGB	XYZ
255 255 255	115.43 120.57 117.52	85 85 170	22.13 19.90 52.06
0 0 0	0.09 0.11 0.11	85 170 170	29.20 43.75 54.73
12 12 12	0.51 0.57 0.54	170 85 170	47.40 33.01 52.66
25 25 25	1.65 1.73 1.69	170 170 85	47.69 52.88 19.14
38 38 38	3.44 3.55 3.62	0 128 206	18.71 27.07 73.86
51 51 51	5.97 6.22 5.88	89 158 220	34.51 43.90 84.46
63 63 63	8.77 9.18 8.79	156 192 231	58.69 66.66 94.49
76 76 76	12.44 13.00 12.49	169 0 102	38.54 19.84 20.21
89 89 89	16.59 17.34 16.80	184 83 142	50.04 33.76 38.19
102 102 102	21.51 22.47 22.05	205 153 190	69.20 60.13 65.92
114 114 114	26.32 27.47 26.96	233 224 22	80.15 88.39 9.38
127 127 127	31.73 33.12 32.25	234 228 92	84.02 91.86 24.85
140 140 140	38.11 39.85 38.52	235 232 160	90.35 97.16 54.21
153 153 153	44.85 46.91 45.87	154 80 64	33.36 24.51 10.32
165 165 165	51.24 53.61 52.62	104 66 56	17.35 14.07 7.66
178 178 178	59.34 61.96 60.46	95 31 31	13.20 8.01 2.92
191 191 191	67.52 70.47 68.73	97 25 63	14.55 8.41 8.52
204 204 204	76.13 79.57 77.04	114 104 36	21.65 22.83 5.33
216 216 216	84.30 88.16 85.40	35 78 45	5.18 9.60 5.47
229 229 229	94.64 99.13 95.87	30 77 97	7.24 10.53 19.24
242 242 242	104.44 108.94 105.80	37 32 67	4.31 3.57 9.33
0 0 128	5.43 3.08 29.61	215 216 220	84.02 87.70 87.86
0 0 255	19.59 11.76 107.51	194 195 199	69.90 73.12 73.08
0 128 0	5.77 19.64 2.37	152 153 155	44.73 46.87 47.00
0 128 128	11.20 22.63 32.42	110 110 112	24.77 25.87 26.06
0 170 255	29.17 44.61 111.16	68 68 69	10.34 10.78 10.58
0 255 0	20.92 70.01 7.97	30 30 30	2.36 2.39 2.36
0 255 170	30.14 75.21 58.85	41 27 106	6.93 4.75 21.67
0 255 255	40.35 81.56 115.20	80 64 137	16.98 13.86 35.33
85 85 85	15.28 16.02 15.50	138 127 182	40.21 37.88 59.47
128 0 0	20.99 10.78 0.72	167 22 30	34.74 18.51 3.22
128 0 128	26.49 13.81 30.08	183 84 63	44.88 31.14 10.47
128 128 0	26.69 30.70 3.00	204 151 128	62.92 55.46 34.79
128 128 128	32.36 33.83 32.92	36 128 56	9.12 21.65 9.01
128 128 255	46.78 42.63 110.21	93 155 94	23.53 36.23 21.30
128 255 128	47.81 84.07 39.05	156 190 154	50.03 60.75 48.47
170 0 255	55.13 29.86 108.00	188 145 127	55.25 50.04 33.99
170 170 170	54.53 56.86 55.61	202 145 30	56.47 50.46 6.51
170 255 0	56.14 88.13 8.97	169 9 73	37.11 19.24 11.56
170 255 255	75.95 99.90 115.92	116 16 104	21.70 11.65 21.34
255 0 0	74.30 37.97 1.91	156 184 41	42.12 54.41 9.41
255 0 170	83.43 43.16 51.97	22 128 139	13.07 23.91 37.28
255 0 255	93.74 49.55 108.50	28 88 166	13.22 15.90 49.74
255 128 128	85.71 61.35 34.36	236 237 242	100.77 105.14 105.57
255 170 0	84.18 71.79 5.77	212 214 221	82.96 86.78 88.98
255 170 255	103.70 83.35 112.43	189 193 201	67.97 71.59 74.43
255 255 0	95.22 108.29 9.81	144 149 156	41.79 44.46 47.26
255 255 170	104.48 113.44 60.90	101 107 111	22.40 24.18 25.35
170 85 85	40.70 29.06 16.22	66 72 75	10.50 11.40 12.29
85 170 85	22.46 39.84 18.43	41 50 51	4.69 5.51 5.94

Uniformity

The uniformity test shows the luminance (in %) and the color deviation (in Delta C*) from the centre to the 8 measuring points around it. The maximum deviation for the luminance may be 10%. The average value and the chroma deviations are only informative. This test is not taken in consideration for the UDACT certification.

Results of the white measurements:

Absolute Luminance Luminance to Centre Lab-Chroma to Centre	123.84 Cd/m2 103 % 3.53	121.41 Cd/m2 101 % 3.53	123.24 Cd/m2 103 % 0.63
Absolute Luminance Luminance to Centre Lab-Chroma to Centre	123.19 Cd/m2 102 % 0.87	120.19 Cd/m2 100 % 0.00	123.34 Cd/m2 103 % 1.85
Absolute Luminance Luminance to Centre Lab-Chroma to Centre	112.20 Cd/m2 93 % 0.72	114.56 Cd/m2 95 % 1.27	113.16 Cd/m2 94 % 1.82

Results of the gray measurements:

Absolute Luminance Luminance to Centre Lab-Chroma to Centre	36.00 Cd/m2 105 % 2.44	33.98 Cd/m2 99 % 2.53	34.83 Cd/m2 101 % 1.33
Absolute Luminance Luminance to Centre Lab-Chroma to Centre	35.66 Cd/m2 104 % 0.93	34.43 Cd/m2 100 % 0.18	34.90 Cd/m2 101 % 0.97
Absolute Luminance Luminance to Centre Lab-Chroma to Centre	32.54 Cd/m2 95 % 1.19	32.09 Cd/m2 93 % 1.09	32.19 Cd/m2 94 % 0.99

Results of the dark measurements:

Absolute Luminance Luminance to Centre Lab-Chroma to Centre	10.42 Cd/m2 108 % 1.63	9.30 Cd/m2 97 % 1.52	9.57 Cd/m2 100 % 0.60
Absolute Luminance Luminance to Centre Lab-Chroma to Centre	10.22 Cd/m2 106 % 0.86	9.62 Cd/m2 100 % 0.49	9.52 Cd/m2 99 % 0.74
Absolute Luminance Luminance to Centre Lab-Chroma to Centre	9.31 Cd/m2 97 % 1.08	8.59 Cd/m2 89 % 0.91	8.90 Cd/m2 93 % 1.21

Summary:

	Average	Max
Luminance Deviation	4%	11%
Chroma Deviation	1	4