# UGRA
# Display Analysis & Certification Tool Report

## Basics

| | |
|---|---|
| Date: | 2009-6-3 11:32:37 |
| Report-Version: | v1.2.2 |
| Monitor-Name: | QUATO 230 |
| EDID-Name: | QUATO 230 |
| EDID-Serial: | DTCG36A0272 |
| Profile: | /Library/ColorSync/Profiles/03.06.09-5800K-18-120cd-trc.icc |
| Created: | 2009-6-3 11:25 |
| Measurement device: | DTP94-LCD mode |

## Summary

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

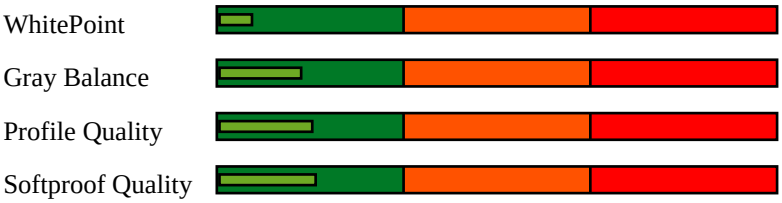
**Calibration**

| | |
|---|---|
| White Point | yes |
| Gray balance | yes |
| Profile quality | yes |

**Softproofing**

| | |
|---|---|
| MultiColor, HighBody | no |
| Offset/Gravure Paper Type 1/2 | yes |
| Offset on uncoated paper | yes |
| Newspaper Printing | 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 %3.1.

| | |
|---|---|
| XYZ: | 113.48 118.92 116.55 |
| XYZ (normalized): | 95.42 100.00 98.00 |
| Luminance: | 118.9 Cd/m2 |
| Next Temperature: | 5826 Kelvin |
| Assumed Target Whitepoint: | 5800 Kelvin |
| Distance to assumed Target Whitepoint: | 0.4 deltaE |

# Blackpoint

| | |
|---|---|
| Luminance: | 0.4 Cd/m2 |
| Chromaticity: | 1.1 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 | 7088 | 0.37 | 2.81 | 1.09 | |
| 5 | 6129 | 0.83 | 6.30 | 0.82 | 1.86 |
| 10 | 5832 | 2.21 | 14.73 | 0.11 | 1.81 |
| 15 | 5787 | 4.24 | 22.18 | 0.25 | 1.81 |
| 20 | 5816 | 6.94 | 28.99 | 0.11 | 1.80 |
| 25 | 5798 | 10.09 | 34.97 | 0.77 | 1.81 |
| 30 | 5801 | 13.82 | 40.61 | 0.27 | 1.81 |
| 35 | 5794 | 18.17 | 46.01 | 0.73 | 1.81 |
| 40 | 5802 | 23.16 | 51.24 | 0.15 | 1.80 |
| 45 | 5817 | 28.09 | 55.71 | 0.07 | 1.82 |
| 50 | 5811 | 34.23 | 60.59 | 0.18 | 1.81 |
| 55 | 5811 | 40.39 | 64.93 | 0.19 | 1.82 |
| 60 | 5811 | 47.56 | 69.46 | 0.16 | 1.81 |
| 65 | 5802 | 54.77 | 73.58 | 0.18 | 1.81 |
| 70 | 5811 | 62.38 | 77.55 | 0.18 | 1.82 |
| 75 | 5829 | 70.76 | 81.57 | 0.45 | 1.82 |
| 80 | 5806 | 79.69 | 85.51 | 0.29 | 1.81 |
| 85 | 5840 | 87.89 | 88.88 | 0.15 | 1.87 |
| 90 | 5821 | 98.01 | 92.76 | 0.16 | 1.85 |
| 95 | 5807 | 108.16 | 96.39 | 0.23 | 1.88 |
| 100 | 5826 | 118.92 | 100.00 | 0.00 | |
| | | | | | |
| Average | 5812 | | | 0.24 | 1.82 |
| Range | | | | 0.88 | |

Tone values = 100.0%

# 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 | 2.8 0.1 -1.1 | -2.8 -0.1 1.1 | 3.0 |
| 0 0 128 | 18.1 33.6 -69.5 | -1.1 0.7 -0.7 | 1.4 |
| 0 0 255 | 34.3 52.2 -106.9 | -0.4 -0.4 0.8 | 1.0 |
| 0 128 0 | 50.9 -57.1 52.0 | -0.5 0.1 0.6 | 0.8 |
| 0 128 128 | 53.4 -37.8 -12.9 | -0.4 0.1 0.1 | 0.4 |
| 0 170 255 | 69.3 -26.7 -50.0 | -0.4 0.0 0.8 | 0.9 |
| 0 255 0 | 84.7 -86.6 80.6 | -0.3 0.4 -1.1 | 1.2 |
| 0 255 170 | 86.6 -71.0 14.3 | -0.3 0.1 0.3 | 0.4 |
| 0 255 255 | 88.6 -56.9 -20.1 | -0.2 0.0 0.8 | 0.8 |
| 85 85 85 | 44.5 -0.2 0.3 | -0.5 0.2 -0.3 | 0.6 |
| 128 0 0 | 34.3 51.1 50.1 | -0.6 -0.3 2.9 | 3.0 |
| 128 0 128 | 38.5 56.3 -34.1 | -0.3 -0.8 -0.1 | 0.9 |
| 128 128 0 | 58.9 -8.8 64.5 | -0.3 0.1 0.1 | 0.4 |
| 128 128 128 | 61.0 0.0 0.1 | -0.2 -0.0 -0.1 | 0.3 |
| 128 128 255 | 65.6 16.9 -54.7 | -0.2 -0.2 0.7 | 0.7 |
| 128 255 128 | 89.5 -51.1 39.6 | -0.1 0.4 -0.4 | 0.6 |
| 170 0 255 | 53.2 72.1 -73.7 | -0.1 -1.2 0.2 | 1.2 |
| 170 170 170 | 75.2 0.3 0.1 | -0.2 -0.3 -0.1 | 0.4 |
| 170 255 0 | 90.9 -43.2 90.3 | -0.1 0.3 -1.4 | 1.4 |
| 170 255 255 | 94.3 -24.5 -9.4 | -0.1 0.1 -0.0 | 0.1 |
| 255 0 0 | 59.3 78.0 85.2 | -0.2 -1.2 -0.6 | 1.4 |
| 255 0 170 | 62.5 81.9 -16.4 | 0.0 -1.5 -0.1 | 1.5 |
| 255 0 255 | 65.8 85.4 -52.1 | 0.0 -1.4 0.4 | 1.5 |
| 255 128 128 | 75.0 42.6 24.1 | -0.0 -0.5 -0.7 | 0.9 |
| 255 170 0 | 81.1 20.5 89.8 | -0.1 0.1 -1.2 | 1.2 |
| 255 170 255 | 85.2 33.2 -22.1 | 0.0 -0.0 0.2 | 0.2 |
| 255 255 0 | 96.9 -13.3 99.4 | -0.0 0.2 -1.7 | 1.8 |
| 255 255 170 | 98.4 -6.6 34.8 | 0.0 0.1 -0.5 | 0.5 |
| 255 255 255 | 100.0 0.0 0.0 | 0.0 0.0 0.0 | 0.0 |
| 170 85 85 | 55.5 33.5 19.3 | -0.3 -0.4 -0.8 | 1.0 |
| 85 170 85 | 66.9 -40.5 31.3 | -0.3 0.6 -0.4 | 0.8 |
| 85 85 170 | 48.0 13.2 -42.7 | -0.3 -0.1 0.1 | 0.3 |
| 85 170 170 | 68.9 -28.6 -10.5 | -0.2 0.4 0.1 | 0.4 |
| 170 85 170 | 58.2 40.0 -25.5 | -0.2 -0.6 0.1 | 0.7 |
| 170 170 85 | 73.5 -7.0 42.4 | -0.3 -0.1 -1.1 | 1.1 |
| | | | |
| Average | | | 0.9 |
| Maximum | | | 3.0 |

# 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 | 57.9 -21.2 -46.0 | 16.5 |
| 66.9 -24.7 -37.1 | 67.0 -24.8 -38.0 | 0.9 |
| 79.7 -12.5 -21.8 | 79.7 -12.7 -22.1 | 0.4 |
| 48.0 74.0 -3.0 | 50.2 68.6 0.8 | 7.0 |
| 60.8 50.6 -6.7 | 60.9 51.2 -6.3 | 0.7 |
| 76.4 25.8 -6.9 | 76.4 26.0 -6.8 | 0.3 |
| 89.0 -5.0 93.0 | 88.9 -4.8 93.1 | 0.2 |
| 90.3 -4.7 62.6 | 90.4 -5.3 64.4 | 1.9 |
| 92.2 -3.5 31.1 | 92.1 -3.5 31.7 | 0.5 |
| 53.1 37.7 28.9 | 53.4 38.1 29.5 | 0.8 |
| 41.5 22.7 16.8 | 42.0 22.1 16.4 | 0.8 |
| 31.9 40.0 24.0 | 32.7 40.1 24.3 | 0.9 |
| 32.5 44.5 -1.8 | 33.2 44.7 -1.3 | 0.9 |
| 51.3 1.3 44.5 | 51.6 1.3 44.8 | 0.5 |
| 34.6 -36.4 13.9 | 35.2 -36.1 12.9 | 1.2 |
| 36.0 -26.2 -20.9 | 37.1 -22.9 -19.8 | 3.6 |
| 20.9 9.6 -23.6 | 21.9 9.0 -22.8 | 1.4 |
| 89.0 0.0 -1.9 | 88.8 -0.1 -1.9 | 0.1 |
| 82.8 0.0 -1.7 | 82.7 -0.1 -1.7 | 0.2 |
| 69.3 0.0 -1.4 | 69.4 -0.1 -1.0 | 0.4 |
| 54.1 0.0 -1.0 | 54.3 0.5 -1.2 | 0.5 |
| 36.6 0.0 -0.5 | 37.0 0.3 -0.7 | 0.5 |
| 16.0 0.0 0.0 | 17.7 -0.0 0.0 | 1.7 |
| 24.0 22.0 -46.0 | 24.7 21.6 -45.6 | 0.9 |
| 40.9 17.9 -36.6 | 41.1 17.8 -36.4 | 0.3 |
| 63.7 10.3 -23.8 | 63.6 10.3 -24.3 | 0.5 |
| 47.0 68.0 48.0 | 47.9 65.9 49.3 | 2.7 |
| 58.5 47.1 37.9 | 58.6 47.8 38.7 | 1.1 |
| 74.2 22.9 21.4 | 74.1 23.2 21.7 | 0.5 |
| 50.0 -65.0 27.0 | 51.7 -52.8 28.3 | 12.4 |
| 62.1 -39.8 21.0 | 62.4 -40.3 20.8 | 0.6 |
| 77.0 -19.1 11.0 | 77.1 -19.7 11.5 | 0.8 |
| 71.2 18.9 17.2 | 71.1 19.2 17.3 | 0.4 |
| 71.2 22.1 73.1 | 71.2 22.6 74.7 | 1.6 |
| 47.7 71.2 16.2 | 49.4 67.6 18.8 | 4.7 |
| 38.0 55.4 -20.9 | 38.1 55.7 -21.3 | 0.5 |
| 73.7 -22.8 67.6 | 73.6 -22.8 68.2 | 0.6 |
| 52.3 -52.3 -20.1 | 54.6 -36.5 -16.7 | 16.3 |
| 43.3 -17.0 -48.6 | 45.0 -10.9 -47.0 | 6.5 |
| 95.0 0.0 -2.0 | 94.9 0.2 -2.0 | 0.3 |
| 88.5 -0.4 -3.1 | 88.4 -0.5 -2.9 | 0.3 |
| 82.0 -0.9 -4.1 | 81.7 -1.0 -4.1 | 0.2 |
| 67.7 -2.0 -4.4 | 67.6 -1.7 -4.5 | 0.3 |
| 52.2 -2.5 -3.5 | 52.4 -2.7 -3.5 | 0.3 |
| 37.5 -3.9 -3.1 | 37.9 -3.8 -3.6 | 0.6 |
| 26.3 -6.8 -3.4 | 27.4 -7.0 -2.7 | 1.3 |
| | | |
| Average | | 2.1 |
| Gamut-Volume | | 94 % |

# 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 | 113.48 118.92 116.55 | 85 85 170 | 22.95 20.31 52.45 |
| 0 0 0 | 0.36 0.37 0.44 | 85 170 170 | 35.32 46.88 56.21 |
| 12 12 12 | 0.80 0.83 0.87 | 170 85 170 | 42.72 31.09 52.77 |
| 25 25 25 | 2.11 2.21 2.18 | 170 170 85 | 48.28 54.27 20.18 |
| 38 38 38 | 4.04 4.24 4.11 | 0 134 207 | 25.43 31.37 76.18 |
| 51 51 51 | 6.62 6.94 6.78 | 51 162 221 | 35.05 44.21 86.69 |
| 63 63 63 | 9.56 10.09 9.70 | 141 195 232 | 58.97 67.10 95.46 |
| 76 76 76 | 13.17 13.82 13.44 | 196 0 104 | 39.85 21.72 21.30 |
| 89 89 89 | 17.25 18.17 17.52 | 206 78 144 | 50.76 34.42 39.26 |
| 102 102 102 | 22.11 23.16 22.61 | 219 151 191 | 69.42 60.00 66.91 |
| 114 114 114 | 26.82 28.09 27.51 | 240 220 0 | 78.89 87.17 9.44 |
| 127 127 127 | 32.65 34.23 33.42 | 239 225 87 | 82.44 91.02 24.19 |
| 140 140 140 | 38.52 40.39 39.43 | 237 230 158 | 88.46 95.79 53.68 |
| 153 153 153 | 45.37 47.56 46.46 | 172 75 65 | 34.27 25.18 10.71 |
| 165 165 165 | 52.31 54.77 53.53 | 114 63 57 | 18.00 14.70 8.50 |
| 178 178 178 | 59.51 62.38 60.94 | 109 25 32 | 13.92 8.64 3.11 |
| 191 191 191 | 67.34 70.76 69.04 | 111 19 64 | 15.26 8.95 9.35 |
| 204 204 204 | 76.00 79.69 77.73 | 119 102 34 | 22.21 23.36 5.29 |
| 216 216 216 | 83.79 87.89 86.21 | 6 79 44 | 5.67 10.27 6.19 |
| 229 229 229 | 93.47 98.01 95.85 | 0 79 97 | 8.26 11.55 20.15 |
| 242 242 242 | 103.21 108.16 105.62 | 37 33 67 | 4.82 4.19 10.01 |
| 0 0 128 | 6.16 3.26 30.88 | 215 216 220 | 83.83 87.84 88.75 |
| 0 0 255 | 20.60 10.58 106.41 | 194 195 199 | 69.82 73.18 73.83 |
| 0 128 0 | 10.82 22.80 3.53 | 152 153 155 | 45.31 47.48 47.48 |
| 0 128 128 | 16.65 25.72 33.95 | 110 110 112 | 25.35 26.42 26.66 |
| 0 170 255 | 38.16 48.07 111.68 | 68 68 69 | 10.86 11.33 11.35 |
| 0 255 0 | 36.69 77.78 11.13 | 30 30 30 | 2.78 2.92 2.86 |
| 0 255 170 | 46.43 82.65 62.24 | 41 30 108 | 7.48 5.30 22.74 |
| 0 255 255 | 56.96 88.01 117.28 | 81 66 138 | 17.36 14.38 35.93 |
| 85 85 85 | 16.06 16.86 16.37 | 139 128 183 | 40.83 38.67 61.58 |
| 128 0 0 | 17.04 9.46 0.69 | 193 0 33 | 35.29 19.40 3.32 |
| 128 0 128 | 22.81 12.33 30.76 | 205 76 64 | 44.83 31.13 10.61 |
| 128 128 0 | 27.36 31.83 3.79 | 219 147 128 | 62.57 55.41 34.79 |
| 128 128 128 | 33.13 34.72 33.94 | 0 130 53 | 12.19 23.73 9.94 |
| 128 128 255 | 47.55 42.04 109.18 | 68 156 92 | 23.67 36.74 21.64 |
| 128 255 128 | 58.76 89.54 41.61 | 145 191 152 | 50.25 61.56 48.13 |
| 170 0 255 | 48.22 25.65 105.25 | 200 142 127 | 55.12 49.97 34.06 |
| 170 170 170 | 55.22 57.75 56.53 | 219 139 26 | 55.86 49.86 6.15 |
| 170 255 0 | 64.01 92.66 11.56 | 196 0 75 | 38.09 20.84 12.15 |
| 170 255 255 | 84.02 102.73 115.93 | 133 0 106 | 22.08 12.01 22.09 |
| 255 0 0 | 57.83 31.74 1.35 | 150 182 33 | 42.27 54.45 9.07 |
| 255 0 170 | 67.36 36.49 51.29 | 0 132 139 | 17.94 27.06 38.65 |
| 255 0 255 | 77.77 41.79 105.73 | 0 93 167 | 15.68 17.73 51.63 |
| 255 128 128 | 73.66 56.89 34.16 | 236 237 242 | 99.42 103.95 105.09 |
| 255 170 0 | 74.61 68.82 6.54 | 211 215 221 | 82.63 86.79 89.20 |
| 255 170 255 | 94.56 78.92 110.91 | 188 193 201 | 67.55 71.16 74.92 |
| 255 255 0 | 93.36 108.73 12.03 | 142 149 156 | 42.01 44.56 47.85 |
| 255 255 170 | 102.94 113.50 62.08 | 99 107 111 | 22.73 24.45 26.11 |
| 170 85 85 | 35.78 27.61 16.44 | 63 72 75 | 10.88 11.94 13.08 |
| 85 170 85 | 28.42 43.43 20.09 | 38 51 51 | 5.32 6.23 6.78 |