

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                          |                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| <b>Prüfbericht Nr.:</b> 13011854 002                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                          | <b>Seite 1 von 17</b>                                              |
| <i>Test Report No.:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                          | <i>Page 1 of 17</i>                                                |
| <b>Auftraggeber:</b><br><i>Client:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>KORTEK Corporation</b><br>26, Venture-ro 24(isipsa) beon-gil, Yeonsu-gu, Incheon, Rep. of Korea                                       |                                                                    |
| <b>Gegenstand der Prüfung:</b><br><i>Test item:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>LCD Monitor</b>                                                                                                                       |                                                                    |
| <b>Bezeichnung:</b><br><i>Identification:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>P702</b>                                                                                                                              | <b>Serien-Nr.:</b><br><i>Serial No.:</i> <b>N/A(Prototype)</b>     |
| <b>Wareneingangs-Nr.:</b><br><i>Receipt No.:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>133029316</b>                                                                                                                         | <b>Eingangsdatum:</b> <b>03.02.2012</b><br><i>Date of receipt:</i> |
| <b>Zustand des Prüfgegenstandes bei Anlieferung:</b><br><i>Condition of test item at delivery:</i>                                                                                                                                                                                                                                                                                                                                                                                               | <b>Prototype</b>                                                                                                                         |                                                                    |
| <b>Prüfört:</b><br><i>Testing location:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>TÜV Rheinland Korea Ltd.</b><br>Test Center, 4F, E&C Venture Dream Tower 6, 197-28, Guro-dong, Guro-gu, Seoul, 152-719, Rep. of Korea |                                                                    |
| <b>Prüfgrundlage:</b><br><i>Test specification:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>ISO 9241-307:2008</b>                                                                                                                 |                                                                    |
| <b>Prüfergebnis:</b><br><i>Test result:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n).</b><br><i>The test item passed the test specification(s).</i>          |                                                                    |
| <b>Prüflaboratorium:</b><br><i>Testing Laboratory:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>TÜV Rheinland Korea Ltd.</b><br>Test Center, 4F, E&C Venture Dream Tower 6, 197-28, Guro-dong, Guro-gu, Seoul, 152-719, Rep. of Korea |                                                                    |
| <b>geprüft / tested by:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>kontrolliert / checked by:</b>                                                                                                        |                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                               |                                                     |                                                                    |
| 03.02.2012 Hyun-Seok Oh / Test Engineer                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 03.02.2012 Jin-Wan Park / Reviewer                                                                                                       |                                                                    |
| <b>Datum,</b><br><i>Date,</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Name, Stellung</b><br><i>Name, Position</i>                                                                                           | <b>Unterschrift</b><br><i>Signature</i>                            |
| <b>Datum,</b><br><i>Date,</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Name, Stellung</b><br><i>Name, Position</i>                                                                                           | <b>Unterschrift</b><br><i>Signature</i>                            |
| <b>Sonstiges / Other Aspects:</b><br>LCD panel and LCD panel manufacturer: SAMSUNG LTI700HD01<br>The test item fulfills the requirements according to ISO 13406-2:2001.<br>The Test result is valid for the Intended context of use as mentioned on page 4 of this test report and for the following content and perception in accordance with ISO 9241-307:<br><b>artificial information</b><br><b>Modification:</b><br>Re-issue of the test report(13011854.002) due to client address change. |                                                                                                                                          |                                                                    |
| Abkürzungen: P(ass) = entspricht Prüfergrundlage<br>F(ail) = entspricht nicht Prüfergrundlage<br>N/A = nicht anwendbar<br>N/T = nicht getestet                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                          |                                                                    |
| Abbreviations: P(ass) = passed<br>F(ail) = failed<br>N/A = not applicable<br>N/T = not tested                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                          |                                                                    |
| <b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b><br><i>This test report relates to the a. m. test item. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products</i>                 |                                                                                                                                          |                                                                    |

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**Verwendete Messgeräte/Prüfmittel / Used measuring instrument/test equipment**

| <b>Messgerät/Prüfmittel</b><br><i>measuring instrument/test equipment</i> | <b>Gerätenummer</b><br><i>Device No.</i> | <b>nächste Kalibrierung</b><br><i>next calibration</i> |
|---------------------------------------------------------------------------|------------------------------------------|--------------------------------------------------------|
| Superspot 210 Display Analysis System<br>Luminance, Distance and Color    | E3-0104                                  | 5 2012                                                 |
| Superspot 220 Display Analysis System<br>Luminance, Distance and Color    | E3-0105                                  | 5 2012                                                 |
| Processing PC: IBM compatible<br>Supporting PC                            | E3-0107                                  | N/A                                                    |
| Reflexionsnormal SRS-99-020<br>Diffuse reflectance                        | E3-0108                                  | N/A                                                    |
| Reflexionsnormal 15-211<br>Specular Reflectance                           | E3-0109                                  | N/A                                                    |
| HORIBA IG-330<br>gloss meter                                              | E3-0114                                  | 6 2012                                                 |
| N/A                                                                       | ---                                      | ---                                                    |

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**Summary of the test results**

| <b>Attribute</b>                                     | <b>artificial inf.</b> | <b>reality inf.</b> |
|------------------------------------------------------|------------------------|---------------------|
| 1. Design viewing distance                           | P                      |                     |
| 2. Design viewing direction                          | P                      |                     |
| 3. Gaze and head tilt angles                         | N/A                    |                     |
| 4. Virtual images                                    | N/A                    |                     |
| 5. Illuminance                                       | P                      |                     |
| 6. Display luminance                                 | P                      | P                   |
| 7. Luminance Balance and Glare                       | P                      |                     |
| 8. Luminance and contrast adjustment                 | P                      | N/A                 |
| 9. Vibration                                         | N/A                    |                     |
| 10. Wind and rain                                    | N/A                    |                     |
| 11. Excessive temperatures                           | N/A                    |                     |
| 12. Luminance non-uniformity                         | P                      | F                   |
| 13. Colour non-uniformity                            | P                      | F                   |
| 14. Contrast non-uniformity                          | P                      |                     |
| 15. Geometric distortions                            | N/A                    |                     |
| 16. Screen and faceplate defects                     | P                      |                     |
| 17. Temporal instability (flicker)                   | P                      |                     |
| 18. Spatial instability (jitter)                     | N/A                    |                     |
| 19. Moiré effects                                    | P                      |                     |
| 20. Other visual artefacts                           | P                      |                     |
| 21. Unwanted reflections                             | P                      | F                   |
| 22. Unintended depths effects                        | N/A                    |                     |
| 23. Luminance contrast                               | P                      | P                   |
| 24. Image polarity                                   | P                      | N/A                 |
| 25. Character height                                 | P                      | N/A                 |
| 26. Text size constancy                              | N/A                    | N/A                 |
| 27. Character stroke width                           | P                      | N/A                 |
| 28. Character width-to-height ratio                  | P                      | N/A                 |
| 29. Character format                                 | P                      | N/A                 |
| 30. Between-character spacing                        | P                      | N/A                 |
| 31. Between word spacing                             | P                      | N/A                 |
| 32. Between-line spacing                             | P                      | N/A                 |
| 33. Luminance coding                                 | P                      | N/A                 |
| 34. Blink coding                                     | N/A                    |                     |
| 35. Colour coding                                    | P                      | N/A                 |
| 36. Geometrical coding                               | N/A                    |                     |
| 37. Monochrome and multicolour object size           | N/A                    |                     |
| 38. Contrast for object legibility                   | N/A                    |                     |
| 39. Colour considerations for graphics               | N/A                    |                     |
| 40. Background and surrounding image effects         | N/A                    |                     |
| 41. Number of colours                                | N/A                    |                     |
| 42. Colour gamut and reference white                 | P                      | F                   |
| 43. Electro optical transfer function and grey scale | P                      | P                   |
| 44. Rendering of moving images                       | P                      |                     |
| 45. Colour misconvergence                            | N/A                    |                     |
| 46. Image formation time                             | P                      |                     |
| 47. Spatial resolution                               | P                      |                     |
| 48. Raster modulation                                | N/A                    |                     |
| 49. Fill factor                                      | N/A                    |                     |
| 50. Pixel density                                    | P                      |                     |

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Compliance  
route**5.2 Emissive flat panel Liquid Crystal Display (LCD) for indoor use**

– display laboratory method –

**5.2.1 Intended context of use**

|                           |                                                                                |
|---------------------------|--------------------------------------------------------------------------------|
| User                      | with normal or to normal corrected vision                                      |
| User's age                | 7 years and older (typically up to 65 years)                                   |
| Intended environment      | e.g. visual display workplace in offices, where alpha is the screen tilt angle |
| Screen tilt angle         | 80°                                                                            |
| Design screen illuminance | 293 lx                                                                         |

|                                           |         |
|-------------------------------------------|---------|
| max. possible screen illuminance          |         |
| for artificial information approximately: | 1500 lx |
| for reality information approximately:    | N/A     |

| Typical components of the illumination | artificial inf.<br>pos. Pol. | artificial inf.<br>neg. Pol. | reality inf. |
|----------------------------------------|------------------------------|------------------------------|--------------|
| Luminance of the large aperture source | 200 cd/m <sup>2</sup>        | 200 cd/m <sup>2</sup>        | N/A          |
| Luminance of the small aperture source | 2000 cd/m <sup>2</sup>       | 2000 cd/m <sup>2</sup>       | N/A          |

Typical environment according to the luminance of the large/small aperture source for artificial information:  
suitable for most, but not all, office environments

|                        |                                      |
|------------------------|--------------------------------------|
| Illuminant             | D65                                  |
| Ambient temperature    | 15°C to 35°C                         |
| Content and perception | artificial information               |
| Amount of information  | Visualisation of travel informations |

|                         |                             |
|-------------------------|-----------------------------|
| Image type              | from still to moving image  |
| Design viewing distance | 2891 mm                     |
| ΘD                      | 0.0°                        |
| ΦD                      | 90.0°                       |
| Θrange                  | 80.0°                       |
| Eye and head position   | from fixed to moving        |
| Number of users         | typical single or multiple  |
| Display handling        | stationary display handling |

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**5.2.2 Information about the technology**

Identification on typeplate

P702

Rated voltage and Rated frequency AC 100-240 V

Rated frequency 50 / 60 Hz

Rated current 8.2 - 3.3 A

Rated power consumption not specified

Additional data on type label N/A

Manufacturer

KORTEK Corporation

26, Venture-ro 24 beon-gil, Yeonsu-gu, Incheon, Rep. of Korea

LCD panel and LCD Panel manufacturer Technology

SAMSUNG: LTI700HD01

Emissive flat panel Liquid Crystal Display (LCD)

SPVA(Super Patterned Vertical Align) mode

surface treatment: Anti-Glare(Haze 44%), Hard-Coating 3H

Number of Pixels

1920 x 1080

Pixel arrangement

RGB vertical stripe

pixel size horizontal / vertical

|            |            |
|------------|------------|
| 0.80700 mm | 0.80700 mm |
|------------|------------|

horizontal / vertical display size

|           |          |
|-----------|----------|
| 1549.4 mm | 871.6 mm |
|-----------|----------|

active area diagonal

|           |       |
|-----------|-------|
| 1777.7 mm | 70.0" |
|-----------|-------|

specified gamma value

2.20

typ. colour coordinates at  $\Theta = \Phi = 0^\circ$ 

red

green

blue

white

| x     | Uncertainty | y     | Uncertainty |
|-------|-------------|-------|-------------|
| 0.654 | ±0.030      | 0.336 | ±0.030      |
| 0.272 | ±0.030      | 0.610 | ±0.030      |
| 0.145 | ±0.030      | 0.060 | ±0.030      |
| 0.280 | ±0.050      | 0.290 | ±0.050      |

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|                                     |                                 |
|-------------------------------------|---------------------------------|
| Ambient temperature and humidity    | 24°C +2°C/-2°C , 0.4            |
| Supply voltage and Supply frequency | AC 220 V, 60 Hz                 |
| darkroom condition                  | < 2 lx                          |
| Processing unit                     | TÜV Test PC                     |
| Operating System                    | MS Windows XP Professional SP 3 |
| Graphics-board                      | ATI Radeon 3850                 |
| Test software                       | TÜV DTS Version 1.1 Revision 16 |
| Display mode                        | 1920x1080@60 Hz (32 bit)        |
| video input used                    | DVI                             |

**Displayed colours and RGB values**

| No.  | Name          | R   | G   | B   | NOTE       |
|------|---------------|-----|-----|-----|------------|
| 0 =  | Black         | 0   | 0   | 0   | R=G=B=0%   |
| 1 =  | Blue          | 0   | 0   | 128 | R,G,B=50%  |
| 2 =  | Green         | 0   | 128 | 0   | R,G,B=50%  |
| 3 =  | Cyan          | 0   | 128 | 128 | R,G,B=50%  |
| 4 =  | Red           | 128 | 0   | 0   | R,G,B=50%  |
| 5 =  | Magenta       | 128 | 0   | 128 | R,G,B=50%  |
| 6 =  | Yellow        | 128 | 128 | 0   | R,G,B=50%  |
| 7 =  | White         | 192 | 192 | 192 | R=G=B=75%  |
| 8 =  | Grey          | 128 | 128 | 128 | R=G=B=50%  |
| 9 =  | Light Blue    | 0   | 0   | 255 | R,G,B=100% |
| 10 = | Light Green   | 0   | 255 | 0   | R,G,B=100% |
| 11 = | Light Cyan    | 0   | 255 | 255 | R,G,B=100% |
| 12 = | Light Red     | 255 | 0   | 0   | R,G,B=100% |
| 13 = | Light Magenta | 255 | 0   | 255 | R,G,B=100% |
| 14 = | Light Yellow  | 255 | 255 | 0   | R,G,B=100% |
| 15 = | Bright White  | 255 | 255 | 255 | R=G=B=100% |

**Adjustment of the visual display**

|                    |                      |
|--------------------|----------------------|
| clock              | AUTO adjustmend used |
| phase              | AUTO adjustmend used |
| screen position    | AUTO adjustmend used |
| colour/colour mode | normal               |
| gain               | R=G=B=50             |
| brightness         | 50                   |
| contrast           | 50                   |
| sharpness          | 50                   |
| black level        | N/A                  |

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| Attribute                                                                                                                | Assessment and Reporting                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |        |        |        |       |       |        |       |       | Result                                |   |   |   |   |   |   |   |   |          |      |       |       |       |       |       |       |      |        |     |           |        |        |       |       |        |       |                                |       |       |      |    |    |     |     |     |     |     |     |     |           |       |       |     |     |     |     |     |     |     |      |   |   |   |   |   |   |   |   |   |           |       |       |       |       |       |       |       |       |       |                                                                                                                          |  |  |  |  |  |  |  |  |  |                                           |
|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|-------|-------|--------|-------|-------|---------------------------------------|---|---|---|---|---|---|---|---|----------|------|-------|-------|-------|-------|-------|-------|------|--------|-----|-----------|--------|--------|-------|-------|--------|-------|--------------------------------|-------|-------|------|----|----|-----|-----|-----|-----|-----|-----|-----|-----------|-------|-------|-----|-----|-----|-----|-----|-----|-----|------|---|---|---|---|---|---|---|---|---|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|-------------------------------------------|
| 1. Design viewing distance                                                                                               | 2891 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |        |        |       |       |        |       |       | artificial & reality inf.<br>P        |   |   |   |   |   |   |   |   |          |      |       |       |       |       |       |       |      |        |     |           |        |        |       |       |        |       |                                |       |       |      |    |    |     |     |     |     |     |     |     |           |       |       |     |     |     |     |     |     |     |      |   |   |   |   |   |   |   |   |   |           |       |       |       |       |       |       |       |       |       |                                                                                                                          |  |  |  |  |  |  |  |  |  |                                           |
| 2. Design viewing direction                                                                                              | a) The visual display has optically anisotropic behavior.<br>b) Viewing cone with multiple visual displays and moving head position<br>$\Theta_D$ 0.0°<br>$\Phi_D$ 90.0°<br>$\Theta_{range}$ 80.0°<br>c) Number of measurement locations (mloc): CL, HL and LL from 11+9 ini. sites<br>d) Measurement directions (mdir): <table><tr><td>mdir</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr><tr><td><math>\Theta</math></td><td>0.0°</td><td>40.0°</td><td>40.0°</td><td>40.0°</td><td>40.0°</td><td>40.0°</td><td>40.0°</td><td>0.0°</td></tr><tr><td><math>\Phi</math></td><td>---</td><td>209.4°</td><td>149.7°</td><td>270.0°</td><td>90.0°</td><td>30.3°</td><td>330.6°</td><td>90.0°</td></tr></table>                                                                                                                                                                                                                                                                                                                            |        |        |        |       |       |        |       |       | mdir                                  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | $\Theta$ | 0.0° | 40.0° | 40.0° | 40.0° | 40.0° | 40.0° | 40.0° | 0.0° | $\Phi$ | --- | 209.4°    | 149.7° | 270.0° | 90.0° | 30.3° | 330.6° | 90.0° | artificial & reality inf.<br>P |       |       |      |    |    |     |     |     |     |     |     |     |           |       |       |     |     |     |     |     |     |     |      |   |   |   |   |   |   |   |   |   |           |       |       |       |       |       |       |       |       |       |                                                                                                                          |  |  |  |  |  |  |  |  |  |                                           |
| mdir                                                                                                                     | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1      | 2      | 3      | 4     | 5     | 6      | 7     |       |                                       |   |   |   |   |   |   |   |   |          |      |       |       |       |       |       |       |      |        |     |           |        |        |       |       |        |       |                                |       |       |      |    |    |     |     |     |     |     |     |     |           |       |       |     |     |     |     |     |     |     |      |   |   |   |   |   |   |   |   |   |           |       |       |       |       |       |       |       |       |       |                                                                                                                          |  |  |  |  |  |  |  |  |  |                                           |
| $\Theta$                                                                                                                 | 0.0°                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 40.0°  | 40.0°  | 40.0°  | 40.0° | 40.0° | 40.0°  | 0.0°  |       |                                       |   |   |   |   |   |   |   |   |          |      |       |       |       |       |       |       |      |        |     |           |        |        |       |       |        |       |                                |       |       |      |    |    |     |     |     |     |     |     |     |           |       |       |     |     |     |     |     |     |     |      |   |   |   |   |   |   |   |   |   |           |       |       |       |       |       |       |       |       |       |                                                                                                                          |  |  |  |  |  |  |  |  |  |                                           |
| $\Phi$                                                                                                                   | ---                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 209.4° | 149.7° | 270.0° | 90.0° | 30.3° | 330.6° | 90.0° |       |                                       |   |   |   |   |   |   |   |   |          |      |       |       |       |       |       |       |      |        |     |           |        |        |       |       |        |       |                                |       |       |      |    |    |     |     |     |     |     |     |     |           |       |       |     |     |     |     |     |     |     |      |   |   |   |   |   |   |   |   |   |           |       |       |       |       |       |       |       |       |       |                                                                                                                          |  |  |  |  |  |  |  |  |  |                                           |
| 3. Gaze and head tilt angles                                                                                             | Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |        |        |        |       |       |        |       |       | artificial & reality inf.<br>N/A      |   |   |   |   |   |   |   |   |          |      |       |       |       |       |       |       |      |        |     |           |        |        |       |       |        |       |                                |       |       |      |    |    |     |     |     |     |     |     |     |           |       |       |     |     |     |     |     |     |     |      |   |   |   |   |   |   |   |   |   |           |       |       |       |       |       |       |       |       |       |                                                                                                                          |  |  |  |  |  |  |  |  |  |                                           |
| 4. Virtual images                                                                                                        | Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |        |        |        |       |       |        |       |       | artificial & reality inf.<br>N/A      |   |   |   |   |   |   |   |   |          |      |       |       |       |       |       |       |      |        |     |           |        |        |       |       |        |       |                                |       |       |      |    |    |     |     |     |     |     |     |     |           |       |       |     |     |     |     |     |     |     |      |   |   |   |   |   |   |   |   |   |           |       |       |       |       |       |       |       |       |       |                                                                                                                          |  |  |  |  |  |  |  |  |  |                                           |
| 5. Illuminance                                                                                                           | a) Design screen illuminance 293 lx<br>b) Screen tilt angle 80°<br>c) Illuminant D65                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |        |        |        |       |       |        |       |       | artificial & reality inf.<br>P        |   |   |   |   |   |   |   |   |          |      |       |       |       |       |       |       |      |        |     |           |        |        |       |       |        |       |                                |       |       |      |    |    |     |     |     |     |     |     |     |           |       |       |     |     |     |     |     |     |     |      |   |   |   |   |   |   |   |   |   |           |       |       |       |       |       |       |       |       |       |                                                                                                                          |  |  |  |  |  |  |  |  |  |                                           |
| 6. Display luminance                                                                                                     | <table><tr><td colspan="10">Luminance of the mloc (perpendicular)</td></tr><tr><td>mloc</td><td>11</td><td>22</td><td>33</td><td>44</td><td>55</td><td>66</td><td>77</td><td>88</td><td></td></tr><tr><td>L [cd/m²]</td><td>396.0</td><td>510.0</td><td>529.0</td><td>546.0</td><td>552.0</td><td>555.0</td><td>555.0</td><td>554.0</td><td>456.0</td></tr><tr><td>mloc</td><td>91</td><td>19</td><td>---</td><td>---</td><td>---</td><td>---</td><td>---</td><td>---</td><td>---</td></tr><tr><td>L [cd/m²]</td><td>458.0</td><td>388.0</td><td>---</td><td>---</td><td>---</td><td>---</td><td>---</td><td>---</td><td>---</td></tr><tr><td>mloc</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr><tr><td>L [cd/m²]</td><td>507.0</td><td>492.0</td><td>517.0</td><td>556.0</td><td>552.0</td><td>568.0</td><td>532.0</td><td>505.0</td><td>522.0</td></tr><tr><td colspan="10">Minimum luminance in cd/m² of all measurement directions for mloc:<br/>CL 328.2 ±16.4<br/>HL 334.4 ±16.7<br/>LL 232.7 ±11.6</td></tr></table> |        |        |        |       |       |        |       |       | Luminance of the mloc (perpendicular) |   |   |   |   |   |   |   |   |          | mloc | 11    | 22    | 33    | 44    | 55    | 66    | 77   | 88     |     | L [cd/m²] | 396.0  | 510.0  | 529.0 | 546.0 | 552.0  | 555.0 | 555.0                          | 554.0 | 456.0 | mloc | 91 | 19 | --- | --- | --- | --- | --- | --- | --- | L [cd/m²] | 458.0 | 388.0 | --- | --- | --- | --- | --- | --- | --- | mloc | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | L [cd/m²] | 507.0 | 492.0 | 517.0 | 556.0 | 552.0 | 568.0 | 532.0 | 505.0 | 522.0 | Minimum luminance in cd/m² of all measurement directions for mloc:<br>CL 328.2 ±16.4<br>HL 334.4 ±16.7<br>LL 232.7 ±11.6 |  |  |  |  |  |  |  |  |  | artificial inf.<br>P<br>reality inf.<br>P |
| Luminance of the mloc (perpendicular)                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |        |        |        |       |       |        |       |       |                                       |   |   |   |   |   |   |   |   |          |      |       |       |       |       |       |       |      |        |     |           |        |        |       |       |        |       |                                |       |       |      |    |    |     |     |     |     |     |     |     |           |       |       |     |     |     |     |     |     |     |      |   |   |   |   |   |   |   |   |   |           |       |       |       |       |       |       |       |       |       |                                                                                                                          |  |  |  |  |  |  |  |  |  |                                           |
| mloc                                                                                                                     | 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 22     | 33     | 44     | 55    | 66    | 77     | 88    |       |                                       |   |   |   |   |   |   |   |   |          |      |       |       |       |       |       |       |      |        |     |           |        |        |       |       |        |       |                                |       |       |      |    |    |     |     |     |     |     |     |     |           |       |       |     |     |     |     |     |     |     |      |   |   |   |   |   |   |   |   |   |           |       |       |       |       |       |       |       |       |       |                                                                                                                          |  |  |  |  |  |  |  |  |  |                                           |
| L [cd/m²]                                                                                                                | 396.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 510.0  | 529.0  | 546.0  | 552.0 | 555.0 | 555.0  | 554.0 | 456.0 |                                       |   |   |   |   |   |   |   |   |          |      |       |       |       |       |       |       |      |        |     |           |        |        |       |       |        |       |                                |       |       |      |    |    |     |     |     |     |     |     |     |           |       |       |     |     |     |     |     |     |     |      |   |   |   |   |   |   |   |   |   |           |       |       |       |       |       |       |       |       |       |                                                                                                                          |  |  |  |  |  |  |  |  |  |                                           |
| mloc                                                                                                                     | 91                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 19     | ---    | ---    | ---   | ---   | ---    | ---   | ---   |                                       |   |   |   |   |   |   |   |   |          |      |       |       |       |       |       |       |      |        |     |           |        |        |       |       |        |       |                                |       |       |      |    |    |     |     |     |     |     |     |     |           |       |       |     |     |     |     |     |     |     |      |   |   |   |   |   |   |   |   |   |           |       |       |       |       |       |       |       |       |       |                                                                                                                          |  |  |  |  |  |  |  |  |  |                                           |
| L [cd/m²]                                                                                                                | 458.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 388.0  | ---    | ---    | ---   | ---   | ---    | ---   | ---   |                                       |   |   |   |   |   |   |   |   |          |      |       |       |       |       |       |       |      |        |     |           |        |        |       |       |        |       |                                |       |       |      |    |    |     |     |     |     |     |     |     |           |       |       |     |     |     |     |     |     |     |      |   |   |   |   |   |   |   |   |   |           |       |       |       |       |       |       |       |       |       |                                                                                                                          |  |  |  |  |  |  |  |  |  |                                           |
| mloc                                                                                                                     | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2      | 3      | 4      | 5     | 6     | 7      | 8     | 9     |                                       |   |   |   |   |   |   |   |   |          |      |       |       |       |       |       |       |      |        |     |           |        |        |       |       |        |       |                                |       |       |      |    |    |     |     |     |     |     |     |     |           |       |       |     |     |     |     |     |     |     |      |   |   |   |   |   |   |   |   |   |           |       |       |       |       |       |       |       |       |       |                                                                                                                          |  |  |  |  |  |  |  |  |  |                                           |
| L [cd/m²]                                                                                                                | 507.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 492.0  | 517.0  | 556.0  | 552.0 | 568.0 | 532.0  | 505.0 | 522.0 |                                       |   |   |   |   |   |   |   |   |          |      |       |       |       |       |       |       |      |        |     |           |        |        |       |       |        |       |                                |       |       |      |    |    |     |     |     |     |     |     |     |           |       |       |     |     |     |     |     |     |     |      |   |   |   |   |   |   |   |   |   |           |       |       |       |       |       |       |       |       |       |                                                                                                                          |  |  |  |  |  |  |  |  |  |                                           |
| Minimum luminance in cd/m² of all measurement directions for mloc:<br>CL 328.2 ±16.4<br>HL 334.4 ±16.7<br>LL 232.7 ±11.6 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |        |        |        |       |       |        |       |       |                                       |   |   |   |   |   |   |   |   |          |      |       |       |       |       |       |       |      |        |     |           |        |        |       |       |        |       |                                |       |       |      |    |    |     |     |     |     |     |     |     |           |       |       |     |     |     |     |     |     |     |      |   |   |   |   |   |   |   |   |   |           |       |       |       |       |       |       |       |       |       |                                                                                                                          |  |  |  |  |  |  |  |  |  |                                           |
| 7. Luminance Balance and Glare                                                                                           | a) Luminance balance: Not applicable.<br>b) Disturbing glare:<br>b1) Description of the surface design:<br>The housing has mostly flat surfaces. Edges are rounded.<br><br>b2) Gloss of the housing determined with gloss reference sample sheets<br>Front = 5 ±1.3<br>Side = 4 ±1.3<br>Rear = 9 ±1.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |        |        |        |       |       |        |       |       | artificial & reality inf.<br>P        |   |   |   |   |   |   |   |   |          |      |       |       |       |       |       |       |      |        |     |           |        |        |       |       |        |       |                                |       |       |      |    |    |     |     |     |     |     |     |     |           |       |       |     |     |     |     |     |     |     |      |   |   |   |   |   |   |   |   |   |           |       |       |       |       |       |       |       |       |       |                                                                                                                          |  |  |  |  |  |  |  |  |  |                                           |

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| Attribute                            | Assessment and Reporting                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  | Result                                      |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|---------------------------------------------|
| 8. Luminance and contrast adjustment | The brightness control adjusts the luminance of the backlight.<br>The contrast control adjusts the maximum luminance.<br>The display luminance of the low state is manually adjustable.<br>The display luminance of the high state is manually adjustable.<br>Independent adjustment of low/high state is technically provided.<br>Visual discrimination of grey levels with 10% step size is provided.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  | artificial inf.<br>P<br>reality inf.<br>N/A |
| 9. Vibration                         | Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |  | artificial &<br>reality inf.<br>N/A         |
| 10. Wind and rain                    | Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |  | artificial &<br>reality inf.<br>N/A         |
| 11. Excessive temperatures           | Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |  | artificial &<br>reality inf.<br>N/A         |
| 12. Luminance non-uniformity         | a) lateral criterion<br>Bright White      CL-LL      1.41 ±0.14      1.7      1.4<br>CL-HL      0.98 ±0.10      1.7      1.4<br>HL-LL      1.44 ±0.14      1.7      1.4<br>Grey                CL-LL      1.34 ±0.13      1.7      1.4<br>CL-HL      0.95 ±0.09      1.7      1.4<br>HL-LL      1.41 ±0.14      1.7      1.4<br>b) directional criterion<br>Bright White                                   1.65 ±0.17      1.7      1.4<br>Grey                                               1.33 ±0.13      1.7      1.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  | artificial inf.<br>P<br>reality inf.<br>F   |
| 13. Colour non-uniformity            | a) lateral criterion      b) directional criterion<br>max. $\Delta u'v'$ max. $\Delta u'v'$<br>Black                      N/A                      N/A<br>Blue                        0.004                      0.032<br>Green                      0.003                      0.005<br>Cyan                        0.008                      0.009<br>Red                         0.004                      0.035<br>Magenta                   0.005                      0.028<br>Yellow                     0.004                      0.005<br>White                      0.007                      0.010<br>Grey                        0.007                      0.008<br>Light Blue                0.001                      0.018<br>Light Green               0.001                      0.010<br>Light Cyan                0.003                      0.018<br>Light Red                 0.003                      0.028<br>Class (artificial information)      low class, but only for a restricted viewing cone<br>Class (reality information)      low class, but only for a restricted viewing cone |  |  |  | artificial inf.<br>P<br>reality inf.<br>F   |

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| Attribute                          | Assessment and Reporting                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Result                               |                  |                    |                  |                    |                |          |       |   |           |      |      |                                |        |        |      |  |   |             |       |       |       |       |       |              |            |          |      |      |      |                                |      |  |  |      |      |      |      |      |      |                                           |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|------------------|--------------------|------------------|--------------------|----------------|----------|-------|---|-----------|------|------|--------------------------------|--------|--------|------|--|---|-------------|-------|-------|-------|-------|-------|--------------|------------|----------|------|------|------|--------------------------------|------|--|--|------|------|------|------|------|------|-------------------------------------------|
| 14. Contrast non-uniformity        | a) lateral criterion 41% ±8%<br>b) directional criterion CR > CRmin; see 23. Luminance contrast                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | artificial & reality inf.<br>P       |                  |                    |                  |                    |                |          |       |   |           |      |      |                                |        |        |      |  |   |             |       |       |       |       |       |              |            |          |      |      |      |                                |      |  |  |      |      |      |      |      |      |                                           |
| 15. Geometric distortions          | Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | artificial & reality inf.<br>N/A     |                  |                    |                  |                    |                |          |       |   |           |      |      |                                |        |        |      |  |   |             |       |       |       |       |       |              |            |          |      |      |      |                                |      |  |  |      |      |      |      |      |      |                                           |
| 16. Screen and faceplate defects   | Specified Class <sub>Pixel</sub> of the visual display II<br>Multiplier n <sub>ClassPixel</sub> 1<br>Observed faults:<br><table><tr><td>Type 1</td><td>Type 2</td><td>Type 3 stuck high</td><td>Type 3 stuck low</td><td>Cluster Type 1 / 2</td><td>Cluster Type 3</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Type 1                               | Type 2           | Type 3 stuck high  | Type 3 stuck low | Cluster Type 1 / 2 | Cluster Type 3 | 0        | 0     | 0 | 0         | 0    | 0    | artificial & reality inf.<br>P |        |        |      |  |   |             |       |       |       |       |       |              |            |          |      |      |      |                                |      |  |  |      |      |      |      |      |      |                                           |
| Type 1                             | Type 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Type 3 stuck high                    | Type 3 stuck low | Cluster Type 1 / 2 | Cluster Type 3   |                    |                |          |       |   |           |      |      |                                |        |        |      |  |   |             |       |       |       |       |       |              |            |          |      |      |      |                                |      |  |  |      |      |      |      |      |      |                                           |
| 0                                  | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0                                    | 0                | 0                  | 0                |                    |                |          |       |   |           |      |      |                                |        |        |      |  |   |             |       |       |       |       |       |              |            |          |      |      |      |                                |      |  |  |      |      |      |      |      |      |                                           |
| 17. Temporal instability (flicker) | Eobs,n ≤ Epred,n → The visual display is flickerfree.<br>screen diagonal 34.2°<br>pupil area 4.54 mm²<br>c0 542.6 cd/m²<br><table><tr><td>n =</td><td colspan="5">1</td></tr><tr><td>f,n [Hz]</td><td colspan="5">60.0</td></tr><tr><td>AMPn [1]</td><td>0.0025</td><td>0.0030</td><td colspan="3"></td></tr><tr><td>Eobs,n [td]</td><td>6.2</td><td>7.4</td><td colspan="3"></td></tr><tr><td>Epred,n [td]</td><td>258.6</td><td>348439.2</td><td colspan="3"></td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                     | n =                                  | 1                |                    |                  |                    |                | f,n [Hz] | 60.0  |   |           |      |      | AMPn [1]                       | 0.0025 | 0.0030 |      |  |   | Eobs,n [td] | 6.2   | 7.4   |       |       |       | Epred,n [td] | 258.6      | 348439.2 |      |      |      | artificial & reality inf.<br>P |      |  |  |      |      |      |      |      |      |                                           |
| n =                                | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                      |                  |                    |                  |                    |                |          |       |   |           |      |      |                                |        |        |      |  |   |             |       |       |       |       |       |              |            |          |      |      |      |                                |      |  |  |      |      |      |      |      |      |                                           |
| f,n [Hz]                           | 60.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                      |                  |                    |                  |                    |                |          |       |   |           |      |      |                                |        |        |      |  |   |             |       |       |       |       |       |              |            |          |      |      |      |                                |      |  |  |      |      |      |      |      |      |                                           |
| AMPn [1]                           | 0.0025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.0030                               |                  |                    |                  |                    |                |          |       |   |           |      |      |                                |        |        |      |  |   |             |       |       |       |       |       |              |            |          |      |      |      |                                |      |  |  |      |      |      |      |      |      |                                           |
| Eobs,n [td]                        | 6.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 7.4                                  |                  |                    |                  |                    |                |          |       |   |           |      |      |                                |        |        |      |  |   |             |       |       |       |       |       |              |            |          |      |      |      |                                |      |  |  |      |      |      |      |      |      |                                           |
| Epred,n [td]                       | 258.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 348439.2                             |                  |                    |                  |                    |                |          |       |   |           |      |      |                                |        |        |      |  |   |             |       |       |       |       |       |              |            |          |      |      |      |                                |      |  |  |      |      |      |      |      |      |                                           |
| 18. Spatial instability (jitter)   | Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | artificial & reality inf.<br>N/A     |                  |                    |                  |                    |                |          |       |   |           |      |      |                                |        |        |      |  |   |             |       |       |       |       |       |              |            |          |      |      |      |                                |      |  |  |      |      |      |      |      |      |                                           |
| 19. Moiré effects                  | horizontal bars P<br>vertical bars P<br>pixel checkerboard P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | artificial & reality inf.<br>P       |                  |                    |                  |                    |                |          |       |   |           |      |      |                                |        |        |      |  |   |             |       |       |       |       |       |              |            |          |      |      |      |                                |      |  |  |      |      |      |      |      |      |                                           |
| 20. Other visual artefacts         | none                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | artificial inf.<br>reality inf.<br>P |                  |                    |                  |                    |                |          |       |   |           |      |      |                                |        |        |      |  |   |             |       |       |       |       |       |              |            |          |      |      |      |                                |      |  |  |      |      |      |      |      |      |                                           |
| 21. Unwanted reflections           | <b>a) Illumination conditions for artificial inf. and positive image polarity</b><br>Luminance of the large aperture source (L-REF,EXT) 200 cd/m²<br>and<br>Luminance of the small aperture source (L-REF,SML) 2000 cd/m²<br><br>Contrast of unwanted reflections $\frac{L_H + L_D + L_S}{L_H + L_D} \leq 1,25$<br><br><table><tr><td>L-REF,EXT</td><td>mloc-mdir</td><td>CL-1S</td><td>CL-2S</td><td>CL-3S</td><td>CL-4S</td><td>CL-5S</td><td>CL-6S</td></tr><tr><td></td><td>left side</td><td>1.01</td><td>1.01</td><td>1.01</td><td>1.01</td><td>1.01</td><td>1.01</td></tr><tr><td></td><td>≤</td><td>±0.13</td><td>±0.13</td><td>±0.13</td><td>±0.13</td><td>±0.13</td><td>±0.13</td></tr><tr><td></td><td>right side</td><td>1.25</td><td>1.25</td><td>1.25</td><td>1.25</td><td>1.25</td><td>1.25</td></tr><tr><td></td><td></td><td>±0.0</td><td>±0.0</td><td>±0.0</td><td>±0.0</td><td>±0.0</td><td>±0.0</td></tr></table> | L-REF,EXT                            | mloc-mdir        | CL-1S              | CL-2S            | CL-3S              | CL-4S          | CL-5S    | CL-6S |   | left side | 1.01 | 1.01 | 1.01                           | 1.01   | 1.01   | 1.01 |  | ≤ | ±0.13       | ±0.13 | ±0.13 | ±0.13 | ±0.13 | ±0.13 |              | right side | 1.25     | 1.25 | 1.25 | 1.25 | 1.25                           | 1.25 |  |  | ±0.0 | ±0.0 | ±0.0 | ±0.0 | ±0.0 | ±0.0 | artificial inf.<br>P<br>reality inf.<br>F |
| L-REF,EXT                          | mloc-mdir                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | CL-1S                                | CL-2S            | CL-3S              | CL-4S            | CL-5S              | CL-6S          |          |       |   |           |      |      |                                |        |        |      |  |   |             |       |       |       |       |       |              |            |          |      |      |      |                                |      |  |  |      |      |      |      |      |      |                                           |
|                                    | left side                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.01                                 | 1.01             | 1.01               | 1.01             | 1.01               | 1.01           |          |       |   |           |      |      |                                |        |        |      |  |   |             |       |       |       |       |       |              |            |          |      |      |      |                                |      |  |  |      |      |      |      |      |      |                                           |
|                                    | ≤                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ±0.13                                | ±0.13            | ±0.13              | ±0.13            | ±0.13              | ±0.13          |          |       |   |           |      |      |                                |        |        |      |  |   |             |       |       |       |       |       |              |            |          |      |      |      |                                |      |  |  |      |      |      |      |      |      |                                           |
|                                    | right side                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1.25                                 | 1.25             | 1.25               | 1.25             | 1.25               | 1.25           |          |       |   |           |      |      |                                |        |        |      |  |   |             |       |       |       |       |       |              |            |          |      |      |      |                                |      |  |  |      |      |      |      |      |      |                                           |
|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ±0.0                                 | ±0.0             | ±0.0               | ±0.0             | ±0.0               | ±0.0           |          |       |   |           |      |      |                                |        |        |      |  |   |             |       |       |       |       |       |              |            |          |      |      |      |                                |      |  |  |      |      |      |      |      |      |                                           |

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| Attribute                               | Assessment and Reporting                                                          |            |       |       |                                                                                             |       |       |       | Result                           |  |
|-----------------------------------------|-----------------------------------------------------------------------------------|------------|-------|-------|---------------------------------------------------------------------------------------------|-------|-------|-------|----------------------------------|--|
| 21. Unwanted reflections<br>(continued) | <b>b) Illumination conditions for artificial inf. and negative image polarity</b> |            |       |       |                                                                                             |       |       |       |                                  |  |
|                                         | Luminance of the large aperture source (L-REF,EXT)                                |            |       |       | 200 cd/m²                                                                                   |       |       |       |                                  |  |
|                                         |                                                                                   |            |       |       | or                                                                                          |       |       |       |                                  |  |
|                                         | Luminance of the small aperture source (L-REF,SML)                                |            |       |       | 2000 cd/m²                                                                                  |       |       |       |                                  |  |
|                                         | Contrast of unwanted reflections                                                  |            |       |       | $\frac{L_L + L_D + L_S}{L_L + L_D} \leq 1,2 + \frac{L_H + L_D}{15 \times (L_L + L_D)}$      |       |       |       |                                  |  |
|                                         | L-REF,EXT                                                                         | mloc-mdir  | CL-1S | CL-2S | CL-3S                                                                                       | CL-4S | CL-5S | CL-6S |                                  |  |
|                                         |                                                                                   | left side  | 5.72  | 6.39  | 6.08                                                                                        | 6.24  | 5.99  | 6.17  |                                  |  |
|                                         |                                                                                   | ≤          | ±1.13 | ±1.29 | ±1.21                                                                                       | ±1.24 | ±1.16 | ±1.22 |                                  |  |
|                                         |                                                                                   | right side | 28.56 | 31.04 | 29.76                                                                                       | 28.69 | 26.51 | 28.60 |                                  |  |
|                                         | L-REF,SML                                                                         | left side  | 1.24  | 1.35  | 1.25                                                                                        | 6.22  | 1.47  | 1.32  |                                  |  |
|                                         |                                                                                   | ≤          | ±0.24 | ±0.27 | ±0.25                                                                                       | ±1.22 | ±0.28 | ±0.26 |                                  |  |
|                                         |                                                                                   | right side | 28.56 | 31.04 | 29.76                                                                                       | 28.69 | 26.51 | 28.60 |                                  |  |
|                                         |                                                                                   |            | ±4.37 | ±4.88 | ±4.63                                                                                       | ±4.43 | ±3.99 | ±4.39 |                                  |  |
|                                         | <b>c) Illumination conditions for reality information</b>                         |            |       |       |                                                                                             |       |       |       |                                  |  |
|                                         | Luminance of the large aperture source (L-REF,EXT)                                |            |       |       | 0 cd/m²                                                                                     |       |       |       |                                  |  |
|                                         |                                                                                   |            |       |       | or                                                                                          |       |       |       |                                  |  |
|                                         | Luminance of the small aperture source (L-REF,SML)                                |            |       |       | 0 cd/m²                                                                                     |       |       |       |                                  |  |
|                                         | Contrast in the presence of reflections                                           |            |       |       | $\frac{L_H + L_D + L_S}{L_L + L_D + L_S} \geq 6,7 + 6,7^2 \times (L_L + L_D + L_S)^{-0,65}$ |       |       |       |                                  |  |
|                                         | L-REF,EXT                                                                         | mloc-mdir  | CL-1S | CL-2S | CL-3S                                                                                       | CL-4S | CL-5S | CL-6S |                                  |  |
|                                         |                                                                                   | left side  | 410.5 | 447.5 | 428.5                                                                                       | 412.3 | 379.7 | 410.9 |                                  |  |
|                                         |                                                                                   | ≥          | ±65.5 | ±73.2 | ±69.4                                                                                       | ±66.4 | ±59.8 | ±65.8 |                                  |  |
|                                         |                                                                                   | right side | 45.4  | 47.6  | 46.7                                                                                        | 46.0  | 44.1  | 45.6  |                                  |  |
|                                         | L-REF,SML                                                                         | left side  | 410.5 | 447.5 | 428.5                                                                                       | 412.3 | 379.7 | 410.9 |                                  |  |
|                                         |                                                                                   | ≥          | ±65.5 | ±73.2 | ±69.4                                                                                       | ±66.4 | ±59.8 | ±65.8 |                                  |  |
|                                         |                                                                                   | right side | 45.4  | 47.6  | 46.7                                                                                        | 46.0  | 44.1  | 45.6  |                                  |  |
|                                         |                                                                                   |            | ±2.8  | ±3.1  | ±3.0                                                                                        | ±2.9  | ±2.7  | ±2.8  |                                  |  |
| 22. Unintended depths effects           | Not applicable.                                                                   |            |       |       |                                                                                             |       |       |       | artificial & reality inf.<br>N/A |  |
| 23. Luminance                           | artificial information    n =                                                     | 1          | 2     | 3     | 4                                                                                           | 5     | 6     | 7     | artificial inf.                  |  |
|                                         | reality information       n =                                                     | 1          | 2     | 3     | 4                                                                                           | 5     | 6     | 7     |                                  |  |
|                                         | CL-n    left side                                                                 | 143.5      | 172.3 | 226.6 | 209.2                                                                                       | 117.9 | 181.0 | 465.7 |                                  |  |
|                                         |                                                                                   | ±20.4      | ±25.3 | ±35.9 | ±33.1                                                                                       | ±16.8 | ±27.0 | ±75.7 |                                  |  |
|                                         | ≥ right side                                                                      | 31.1       | 34.2  | 40.8  | 40.0                                                                                        | 29.8  | 35.5  | 47.3  |                                  |  |
|                                         |                                                                                   | ±0.2       | ±0.3  | ±0.3  | ±0.3                                                                                        | ±0.2  | ±0.3  | ±0.4  |                                  |  |

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|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------------------|--|-----------------------------------------------|
| 24. Image polarity                  | for artificial information: positive and negative polarity                                                                                                                                                                                                                                                                                                                                                                                                                             |          |                           |  | artificial inf.<br>P<br>reality inf.<br>N/A   |
| 25. Character height                | <div>Minimum character height</div> <div>Font<div>Arial, 16 pt, large Font</div></div> <div>Font type<div>Latin-origin</div></div> <div>Character height <math>N_{H,Height}</math><div>20 Pixel / 16.14 mm / 19.2 minutes of arc.</div></div> <div>Default mode</div> <div>Font<div>Arial, 18pt, large Font</div></div> <div>Font type<div>Latin-origin</div></div> <div>Character height <math>N_{H,Height,default}</math><div>22 Pixel / 17.75 mm / 21.1 minutes of arc.</div></div> |          |                           |  | artificial inf.<br>P<br>reality inf.<br>N/A   |
| 26. Text size constancy             | Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |                           |  | artificial inf.<br>N/A<br>reality inf.<br>N/A |
| 27. Character stroke width          | horizontal stroke width                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2 Pixel  | 10.0% of character height |  | artificial inf.<br>P<br>reality inf.<br>N/A   |
|                                     | vertical stroke width                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2 Pixel  | 10.0% of character height |  |                                               |
| 28. Character width-to-height ratio | Character width $N_{H,Width}$                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 13 Pixel |                           |  | artificial inf.<br>P<br>reality inf.<br>N/A   |
|                                     | Character height $N_{H,Height}$                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 20 Pixel |                           |  |                                               |
|                                     | Character width-to-height ratio                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0.65 : 1 |                           |  |                                               |
| 29. Character format                | Character format                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 20 x 13  |                           |  | artificial inf.<br>P<br>reality inf.<br>N/A   |
| 30. Between-character spacing       | Font with serifs                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | No       |                           |  | artificial inf.<br>P<br>reality inf.<br>N/A   |
|                                     | Between-character spacing                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 4 Pixel  |                           |  |                                               |
| 31. Between word spacing            | Print font                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Yes      |                           |  | artificial inf.<br>P<br>reality inf.<br>N/A   |
|                                     | Between-word-spacing                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 11 Pixel |                           |  |                                               |
| 32. Between-line spacing            | Between-line-spacing                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2 Pixel  |                           |  | artificial inf.<br>P<br>reality inf.<br>N/A   |
|                                     | Level 1,max                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1.17     | ≥ 1,5                     |  |                                               |
|                                     | Level 2,min / Level 1,max                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 102.78   | ≥ 1,5                     |  |                                               |
|                                     | Level 3,min / Level 2,max                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2.39     | ≥ 1,5                     |  |                                               |
|                                     | Level 4,min / Level 3,max                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1.90     | ≥ 1,5                     |  |                                               |

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| Attribute                                                          | Assessment and Reporting                                                                                                                                                                                                                                                                                                                                                                                                              | Result                                                         |
|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| 34. Blink coding                                                   | Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                                       | artificial &<br>reality inf.<br>N/A                            |
| 35. Colour coding                                                  | minimum $\Delta E$ 22.4 $\pm$ 5.1<br>between the following two colours:<br>No. of Colour 1 15 (Bright White)<br>No. of Colour 2 7 (White)                                                                                                                                                                                                                                                                                             | artificial inf.<br>P<br>reality inf.<br>N/A                    |
| 36. Geometrical coding                                             | Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                                       | artificial &<br>reality inf.<br>N/A                            |
| 37. Mono-chrome and multicolour object size                        | Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                                       | artificial &<br>reality inf.<br>N/A                            |
| 38. Contrast for object legibility                                 | Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                                       | artificial &<br>reality inf.<br>N/A                            |
| 39. Colour considerations for graphics                             | Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                                       | artificial &<br>reality inf.<br>N/A                            |
| 40. Background and surrounding image effects                       | Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                                       | artificial &<br>reality inf.<br>N/A                            |
| 41. Number of colours                                              | Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                                       | artificial &<br>reality inf.<br>N/A                            |
| 42. Colour gamut and reference white                               | <b>for artificial information</b><br>1. Colour gamut 31.0% $\pm$ 4.5%<br>2.a Reference white (measured) 9548 K<br>2.b Reference white (specified) 9877 K<br>2.c Abs. difference to meas. 329 K<br>3. Adjustability of the ref. white yes<br><b>for reality information</b><br>1. Colour gamut optimal to more than 90% of the population<br>2.a ITU reference white 6500 K<br>2.b Abs. difference to meas. 3048 K<br>3. Skin tone N/A | artificial inf.<br>P<br>reality inf.<br>F                      |
| 43. Electro optical transfer function and grey scale moving images | 1. Electro optical transfer function See figures on page 12 and 13.<br>Monotonicity of first derivative Monotonicity is given<br>Second derivative > 0 Yes<br>Measured gamma value 2.25<br>The visual display has sufficient temporal fidelity to show typical workplace applications like text processing, table calculation etc. with acceptable low blur, smear and other noticeable artefacts.                                    | artificial inf.<br>P<br>reality inf.<br>P<br>reality inf.<br>P |

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|---------------------------|------------------------------------------------------------------------------------------|-------------|------|----------------------------------|
| 45. Colour misconvergence | Not applicable.                                                                          |             |      | artificial & reality inf.<br>N/A |
| 46. Image formation time  | Minimum                                                                                  | 13.5 ms     |      | artificial & reality inf.<br>P   |
|                           | Maximum                                                                                  | 20.6 ms     |      |                                  |
|                           | Mean value                                                                               | 16.1 ms     |      |                                  |
|                           | Standard deviation                                                                       | 2.2 ms      |      |                                  |
|                           | NOTE:<br>mean value switching time t-on 8.0 ms<br>mean value switching time t-off 8.0 ms |             |      |                                  |
| 47. Spatial resolution    | a) Resolution horizontal x vertical                                                      | 1920 x 1080 |      | artificial & reality inf.<br>P   |
|                           | b) Spatial resolution<br>(at the design viewing distance)                                | horizontal  | 1.0' |                                  |
|                           |                                                                                          | vertical    | 1.0' |                                  |
| 48. Raster modulation     | Not applicable.                                                                          |             |      | artificial & reality inf.<br>N/A |
| 49. Fill factor           | Pixel density                                                                            |             |      | artificial & reality inf.<br>N/A |
|                           | Fill factor                                                                              | N/A         |      |                                  |
| 50. Pixel density         | Pixel density horizontal                                                                 | 31.5 ppi    |      | artificial & reality inf.<br>P   |
|                           | Pixel density vertical                                                                   | 31.5 ppi    |      |                                  |

## Remarks

### Classification result according to ISO 13406-2:2001:

Class viewing contrast: II  
 Class viewing colour: IV  
 Reflection class negative Polarity: I  
 Reflection class positive Polarity: II

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## Figures and Tables

Figure 1: Electro-optical transfer function for the design viewing direction (linear)

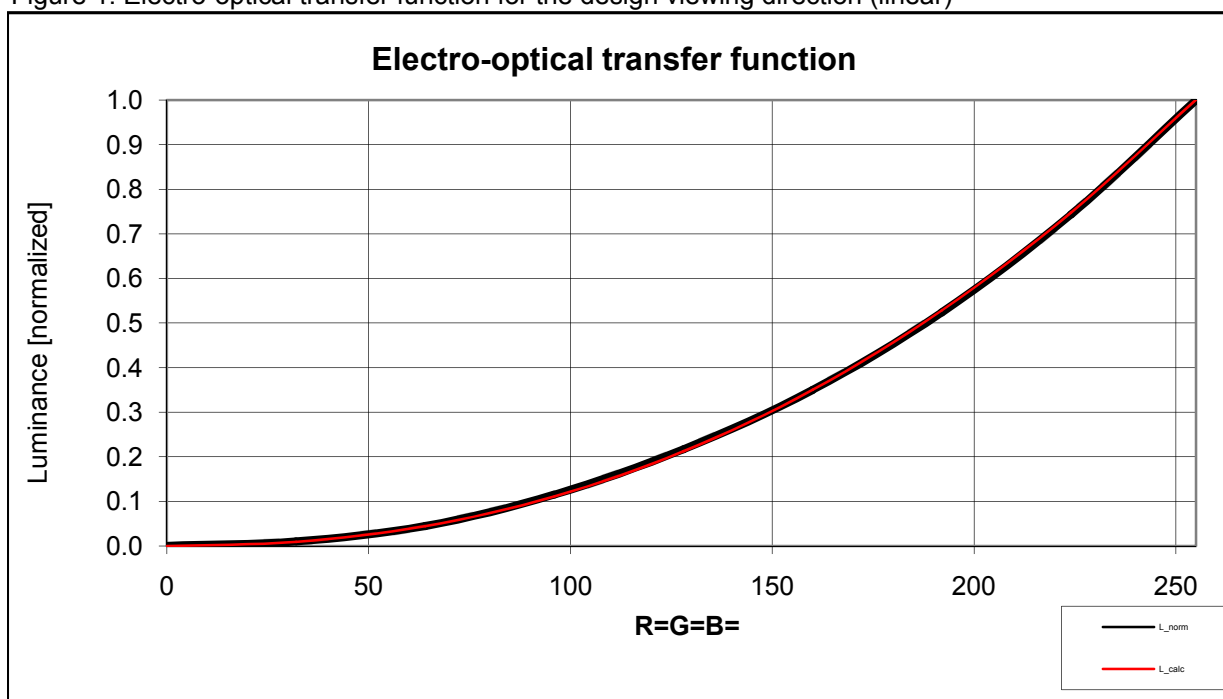
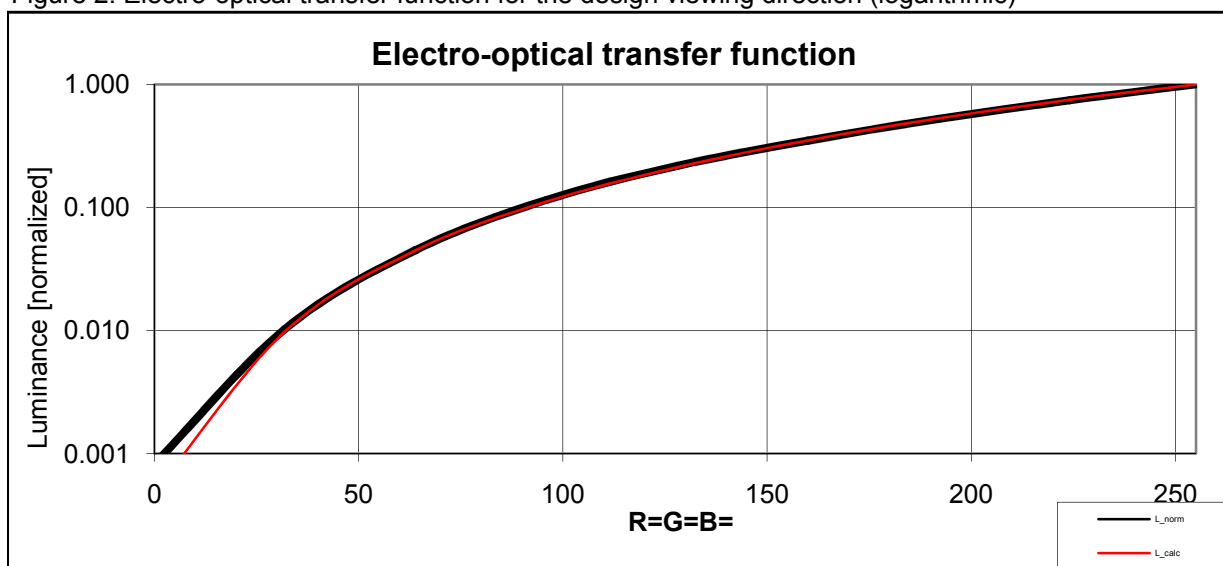


Figure 2: Electro-optical transfer function for the design viewing direction (logarithmic)



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## Figures and Tables (continued)

Figure 3: First derivative of electro-optical transfer function for the design viewing direction

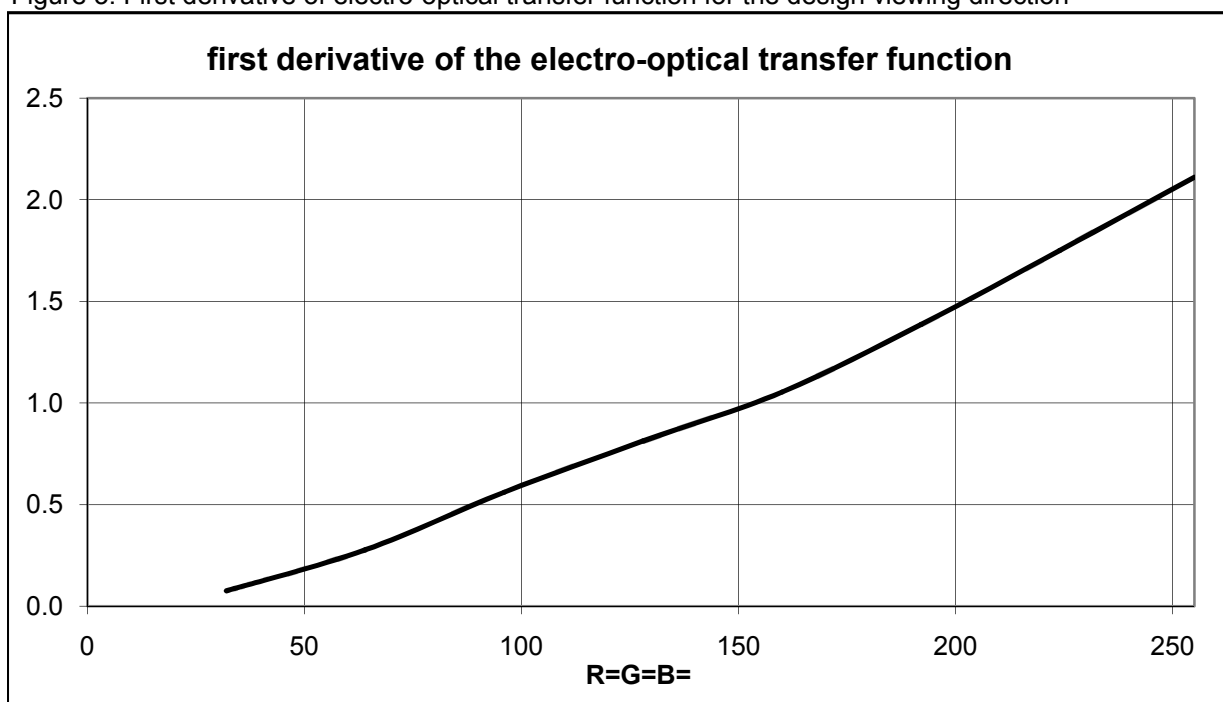
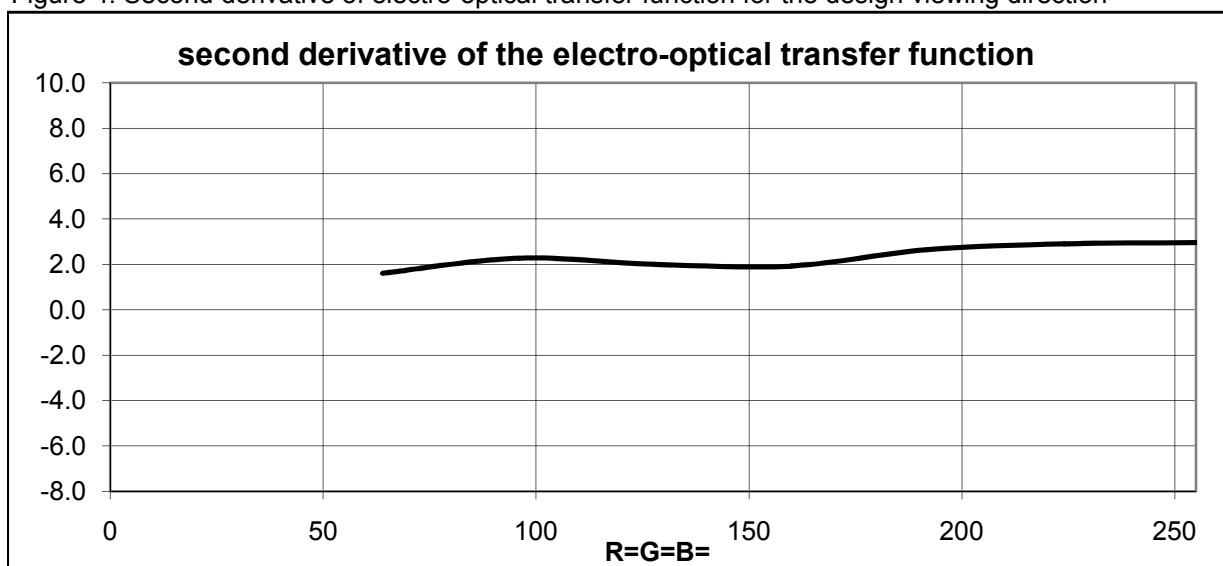


Figure 4: Second derivative of electro-optical transfer function for the design viewing direction



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## Figures and Tables (continued)

Table 1: Image formation time

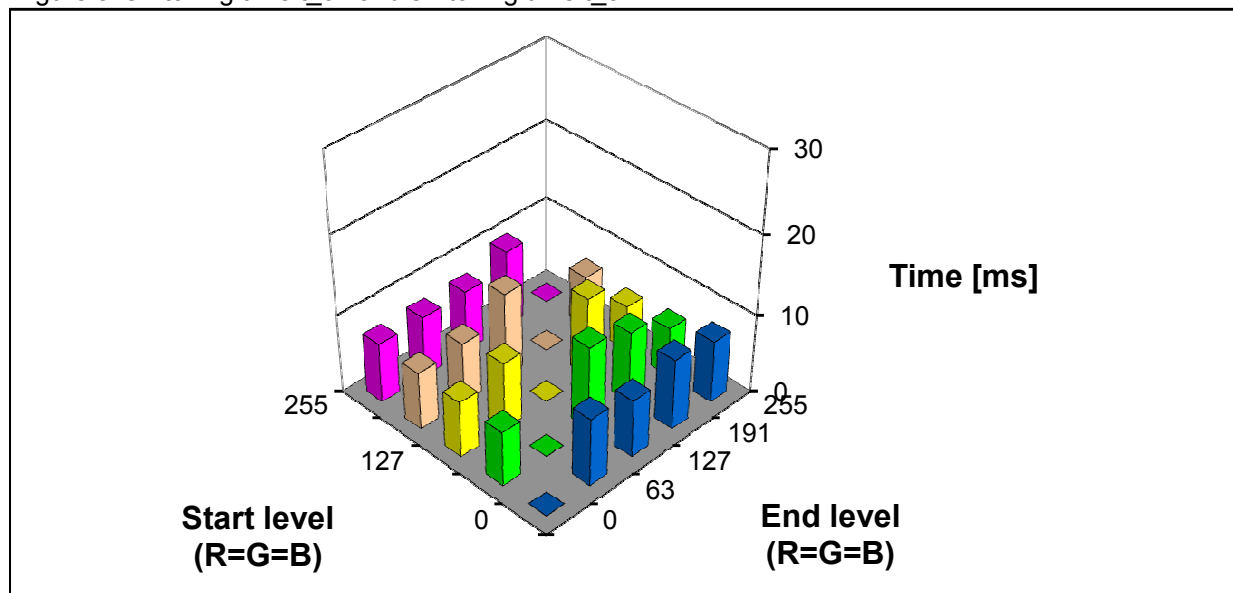
| Switching time $t_{on}$  |     | End level (R=G=B) |        |         |         |        |
|--------------------------|-----|-------------------|--------|---------|---------|--------|
| Switching time $t_{off}$ |     | 0                 | 63     | 127     | 191     | 255    |
| Start level<br>(R=G=B)   | 0   | X                 | 8.5 ms | 7.3 ms  | 8.9 ms  | 7.8 ms |
|                          | 63  | 6.9 ms            | X      | 10.5 ms | 9.0 ms  | 6.2 ms |
|                          | 127 | 7.0 ms            | 8.4 ms | X       | 10.0 ms | 5.7 ms |
|                          | 191 | 7.2 ms            | 7.5 ms | 10.6 ms | X       | 6.5 ms |
|                          | 255 | 7.5 ms            | 7.6 ms | 7.7 ms  | 9.8 ms  | X      |

### Evaluation of the switching time

 mean value switching time  $t_{on}$  8.0 ms

 mean value switching time  $t_{off}$  8.0 ms

| Image formation time   |     | End level (R=G=B) |         |         |         |     |
|------------------------|-----|-------------------|---------|---------|---------|-----|
|                        |     | 0                 | 63      | 127     | 191     | 255 |
| Start level<br>(R=G=B) | 0   | X                 | X       | X       | X       | X   |
|                        | 63  | 15.4 ms           | X       | X       | X       | X   |
|                        | 127 | 14.3 ms           | 18.9 ms | X       | X       | X   |
|                        | 191 | 16.1 ms           | 16.5 ms | 20.6 ms | X       | X   |
|                        | 255 | 15.4 ms           | 13.8 ms | 13.5 ms | 16.3 ms | X   |

 Figure 5: switching time  $t_{on}$  and switching time  $t_{off}$ 


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## Figures and Tables (continued)

Figure 6: CIE 1976 UCS chromaticity diagram

