

Major differences in TCO Displays 5 compared with TCO'03 and TCO'06

Emission A4.1 & A4.2

Screens >26"

- Depending on the size of the screen, the display shall be measured at 2 or more positions from front and behind for both E- & H-fields.
- Only fixed positions at 0°, 90°, 180° & 270° around the screen

Test Luminance.

- Default test setup: $\geq 150\text{cd/m}^2$

Visual Ergonomics

A.2.1 Image Detail Characteristics

A.2.1.1 Native display resolution requirement

- Heading changed from Pixel array to Native display resolution.
- Viewing distance of 1.5 x D set for both office & media displays.

A.2.2 Video Reproduction

A.2.2.1 Motion blur

- Now called A.2.2.1 (before: A.2.8.2)

A.2.3 Luminance Characteristics

A.2.3.1 Luminance Level

- Max & Min demands $\geq 200\text{cd/m}^2$ & $\leq 100\text{cd/m}^2$ for all FPDs
- Test luminance set to default setting $\geq 150\text{cd/m}^2$ all FPDs
- Contrast and Brightness settings shall be noted in the test report for all luminance conditions (max, min and default).
- CCT value in default setting shall be noted
- Test square set to $4^\circ \times 4^\circ$
- 15/18 greyscales shall be visible

A.2.3.2 Luminance Uniformity

- Limit set to 1.53

A.2.3.3 Black Level

- Black level now called A.2.3.3 (before: A.2.8.3) all FPDs
- Measurement level set to $\geq 200\text{cd/m}^2$ all FPDs

A.2.3.4 Luminance Uniformity Angular Dependence

- Both + and - 15° tilts measured even for non-pivot displays
- Limit set to 1.73

A.2.3.5 Greyscale Gamma Curve

- All new criteria to displays – Max & min levels for greyscale luminance

A.2.5 Reflection Characteristics

A.2.5.1 Front Frame Gloss

- Now called A.2.5.1 (before: A.2.5.2)

- High gloss frame no longer disallowed. Measurement shall still be taken and value entered into the report. Any reading over 30 gloss units shall have a written guarantee from applicant. The text is given in the standard.

A.2.6 Screen Colour Characteristics

A.2.6.1 Correlated Colour Characteristics CCT variation

- Limit set to 0.012

A.2.6.2 Colour Uniformity

- Limit set to 0.012

A.2.6.3 RGB Colours

- Blue v' limit set to ≤ 0.210

A.2.6.5 Colour Greyscale Linearity

- New table and limits between greyscales 255 - 45. Max levels set to 0.015 - 0.035. All FPDs

A.3. Work Load Ergonomics

- All FPDs $\leq 26''$

Environmental Requirements

Introduction

- Now describing the new sections the environmental requirements are divided into.

A.6.1 Product Description

- Now called A.6.1 (before A.6.0)
- Now deleted is the need to describe the peripherals.

A.6.2 Organisation

A.6.2.1 Environmental Management System Certification

- Now called A.6.2.1 (before A.6.1)

A.6.2.2 Social Responsibility

- New demand on the brand owner. The brand owner shall demonstrate that it has working practices that promote labour relations and working conditions in the production phase. The different alternatives of verifying social responsibility, like reporting according to Global Reporting Initiative (GRI), Global Compact, membership of Electronic Industry Citizenship Coalition (EICC), certification according to SA8000 or Other relevant initiative and/or Own work.

A.6.3 Climate

A.6.3.1 Energy Consumption

- Now called A.6.3.1 (before A.7 Energy)
- In accordance with the most recent ENERGY STAR® Program Requirements for Displays, Eligibility Criteria

A.6.3.2 Energy Consumption – External power supply

- New demand in accordance with the most recent Eligibility Criteria ENERGY STAR® Program Requirements for Single Voltage External Ac-Dc and Ac-Ac Power Supplies.

A.6.4 Environmentally Hazardous Substances

A.6.4.1 Cadmium, mercury, lead & hexavalent chromium

- Now called A.6.4.1 (before A.6.2.1 and A.6.2.2)

- New demand on the maximum level of mercury in background lighting systems (max 3,5 mg Hg/lamp for lamps < 500 mm. For lamps between 500 mm and 1500 mm in length 5 mg Hg is allowed and for lamps over 1500 mm in length 13 mg Hg is allowed).
- Need to declare the total amount of mercury in the lamps (before part of A.6.3.2).

A.6.4.2 Halogenated Substances

- Now called A.6.4.3 (before A.6.2.3)
- Demand on plasticizers added
- Exempted are printed wiring board laminates, electronic components and all kinds of cable insulation.
- Note that DecaBDE is included

A.6.4.3 Non-Halogenated Substances

- New demand on list of risk-phrases that flame retardants must not have been assigned at the time of application.

A.6.4.4 Plastic with chlorine and bromine as part of the polymer

- Now called A.6.4.4 (before A.6.2.5)

A.6.4.5 Information regarding plastic & flame retarding agents.

- Now called A.6.4.5 (before A.6.2.4)
- Now plasticizers are included.

A.6.5 Product Lifetime

A.6.5.1 Warranty and spare parts

- New demand on 3 year spare part & 1 year life warranty

A.6.6 Preparation for recycling

A.6.6.1 Material coding of plastics

- Now called A.6.6.1 (before A.6.3.1)

A.6.6.2 Variety of plastics

- Now called A.6.6.2 (before A.6.3.3)

A.6.6.3 Moulded in metal parts and metallization of plastic housing

- Now called A.6.6.3 (before A.6.3.4)

A.6.6.4 Preparation for recycling - Mercury lamps

- Now called A.6.6.4 (before part of A.6.3.2)

A.6.6.5 Take back system

- New demand on product take back possibility in a country there the regulation is not yet in practice

A.6.7 Packaging

A.6.7.1 Hazardous substances in product packaging

- New demand on prohibiting hazardous substances in packaging.

A.6.7.2 Preparation for recycling of product packaging material

- New demand that the non-reusable packaging components shall be possible to separate into single material types without the use of tools.