

Correctional Service Canada
Technical Services Branch
Electronics Systems

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ELECTRONICS ENGINEERING
STANDARDS

LCD COLOUR COMPUTER MONITOR
CLOSED CIRCUIT TELEVISION

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RECORD OF REVISIONS

Revision	Paragraph	Comment
0	N/A	Original issue.

1.0 SCOPE

This standard defines the requirements of Correctional Service of Canada (CSC) for Closed Circuit Television (CCTV) Liquid Crystal Display (LCD) computer monitors at federal correctional institutions.

2.0 GENERAL

The LCD colour computer monitor is used in indoor and outdoor security surveillance and assessment systems. It is mounted in standard EIA 19 inch racks, attached to walls and ceilings by brackets, and/or is located on desks and shelves.

3.0 ENVIRONMENTAL REQUIREMENTS

The LCD colour computer monitor shall meet all operational requirements over the following operating ranges:

- 3.1 Temperature: 5° C to +40° C; and
- 3.2 Humidity: up to 95% non-condensing.

4.0 POWER REQUIREMENTS

The monitor shall use standard single phase commercial VAC power within the following limits:

- 4.1 Voltage: 120 VAC \pm 10%;
- 4.2 Frequency: 60 Hz \pm 1.5%;
- 4.3 Transients: up to five times nominal voltage for up to 100 msec durations. Changes in the input power or any fluctuations within the above limits shall not cause damage to the unit; and
- 4.4 Power: power consumption up to 45 watts.

5.0 MECHANICAL REQUIREMENTS

- 5.1 Free standing monitor cabinets shall be metal or metal with plastic front.

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- 5.2 Rack mounted units shall be metal, and come complete with all hardware required to install in standard EIA 19" racks.
 - 5.3 External dimensions, weight, diagonal effective viewing area and mounting configuration of the monitors are application dependent. These requirements shall be specified in the functional specification for the specific application.
 - 5.4 All controls and test points used during calibration and testing shall be easily accessible and permanently labelled.

6.0 DESIGN REQUIREMENTS

- 6.1 All controls for the operation of the monitor shall be on the front of the unit and shall be easy accessible to the operator.
- 6.2 There must be clear permanent labelling of and easy access to all controls and test points used for calibration and testing by maintenance staff.
- 6.3 Where applicable, the monitor must be modular with plug-in circuit cards and assemblies. A standard extender board must be included with the equipment if applicable.
- 6.4 The monitor must be designed and built to high quality standards and have a Mean Time Between Failure (MTBF) of at least five years.
- 6.5 Labels must be permanently affixed to the exterior of the monitor which identify the manufacturer, model number, serial number and the power requirements.

7.0 TECHNICAL REQUIREMENTS

The colour computer monitor shall meet the following minimum requirements:

- 7.1 Native Resolution: $\geq 1024 \times 768$;
- 7.2 Brightness: $\geq 200 \text{ cd/m}^2$;
- 7.3 Contrast Ratio: $\geq 300:1$;
- 7.3 Aspect Ratio: 4 to 3;
- 7.4 Viewing Angle: minimum 120° Horizontal;
minimum 100° Vertical;

7.5 Display : Thin Film Transfer, active matrix, LCD; and

7.6 Video Input: VGA/SVGA/XGA;

8.0 FUNCTIONAL REQUIREMENTS

8.1 The monitor shall provide a visual indication of power on/off.

8.2 Front panel controls shall be easy accessible to the operator and include the following functions: Power on/off; Contrast; Brightness; Tint; and Colour.

9.0 INTERFERENCE

Performance of the monitor and video quality shall not be affected by the presence and use of standard electronic equipment used at the institution. Distance limits of standard electronic equipment are as follows:

9.1 CB transceivers at 1 metre or more;

9.2 VHF and UHF transceivers at 1 metre or more;

9.3 Other radio frequency transmitting, receiving and distribution equipment at 5 metres or more;

9.4 Personal computer and/or work stations at 5 metres or more.

10.0 SAFETY

10.1 The colour monitor must be CSA, UL, ULC or CE approved, as required by law.

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