



**CORRECTIONAL SERVICES CANADA  
TECHNICAL SERVICES BRANCH  
ELECTRONIC SECURITY SYSTEMS**



ES/STD-0221  
Revision 3  
2014 February 18

**ELECTRONIC ENGINEERING STANDARD  
FIXED NETWORK COLOUR CAMERA FOR ENCLOSURE  
FOR USE IN FEDERAL CORRECTIONAL INSTITUTIONS**

**AUTHORITY**

This Standard is approved by the Correctional Service Canada for the procurement and installation of this item in Canadian federal correctional institutions.

Acquisition of a camera for the identified purposes that is not in compliance with this standard must be approved by the Design Authority.

Recommended corrections, additions or deletions should be addressed to the Design Authority at the following address:

Director, Electronic Security Systems  
Correctional Service of Canada  
340 Laurier Avenue West,  
Ottawa, Ontario  
K1A 0P9

Prepared by:

Electronic Systems Engineer  
Electronics Security Systems

Approved by:

Director,  
Electronics Security Systems

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### TABLE OF REVISIONS

Revision	Paragraph	Comment
0		Original issue
1	7.1	Imager changed to ¼ inch or larger
	7.9	Remove numeric quantity on AGC, just yes
	7.12	Added iris requirement
	7.12 – 7.17	Renumber paragraphs
2	6.1	Added CMOS imager
3	All	Reorganized and cleaned to new format

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## TABLE OF ABBREVIATIONS

Abbreviation	Expansion
AGC	Automatic Gain Control
CB	Citizen's Band
CSC	Correctional Service Canada
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
MJPEG	Motion Joint Photographic Experts Group
MTBF	Mean Time Between Failures
ONVIF	Open Network Video Interface Forum
PoE	Power over Ethernet
TCP/IP	Transmission Control Protocol/Internet Protocol
UHF	Ultra High Frequency
VHF	Very High Frequency

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## TABLE OF DEFINITIONS

Term	Definition
Design Authority	Director, Electronics Security Systems

## 1 INTRODUCTION

### 1.1 Overview

- .1 This standard defines the requirements of Correctional Service Canada (CSC) for a fixed focus, network capable camera to be mounted in an enclosure for use at federal correctional institutions. The camera is for deployment in either existing indoor enclosures or Fixed Outdoor Camera Enclosures (ES/STD-0205).

### 1.2 Purpose

- .1 The cameras are deployed for both observation and evidentiary use.
- .2 These cameras are for deployment in outdoor fixed enclosures such as:
  - .1 facility perimeter; and
  - .2 outdoor walkways.
- .3 These cameras are for deployment in existing indoor fixed enclosures such as:
  - .1 indoor hallways;
  - .2 gymnasiums;
  - .3 weight rooms;
  - .4 passage doors/barriers; and
  - .5 explosive environments.
- .4 The camera is used indoors where enclosures already exist and are being reused. New indoor installations must use Fixed Network Colour Dome Cameras (ES/STD-0232) except for new installations in explosive environments.

## 2 REFERENCES

### 2.1 Specifications, Standards, and Statements of Work

- .1 Access to non-government specifications is the responsibility of the contractor.

Number	Title
IEC EN60529	International Electrotechnical Commission Degrees of protection provided by enclosures (IP Code)
IEC EN60950-1	International Electrotechnical Commission Information technology equipment – Safety
IEC EN62262	International Electrotechnical Commission Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts
IEEE 802.3at	IEEE Standard for Information technology – Telecommunications and information exchange between systems – Local and metropolitan area networks – Specific requirements Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications Amendment 3: Data Terminal Equipment (DTE) Power via the Media Dependent Interface (MDI) Enhancements
IEEE 802.3u	IEEE Standards for Local and Metropolitan Area Networks: Supplement to Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications Media Access Control (MAC) Parameters, Physical Layer, Medium Attachment Units, and Repeater for 100 Mb/s Operation, Type 100BASE-T
ES/STD-0205	Electronics Engineering Standards Fixed Outdoor Camera Enclosure
ES/STD-0232	Electronics Engineering Standards Fixed Network Colour Dome Camera

### **3 PHYSICAL**

#### **3.1 Dimensions**

- .1 The camera with lens must:
  - .1 measure less than 75mm high;
  - .2 measure less than 100mm wide;
  - .3 measure less than 250mm long;

#### **3.2 Environment**

- .1 For use either in indoors enclosures or in outdoor heated enclosures.
- .2 The camera must:
  - .1 have a permanently affixed label on the exterior of the unit which identifies the manufacturer, the model or assembly number, the serial number and the power requirement;
  - .2 be capable of continuous operation;
  - .3 start and operate from 0°C to 50°C;
  - .4 start and operate from 0 to 85% non-condensing humidity;

#### **3.3 Interference**

- .1 The camera must operate correctly in the presence of:
  - .1 5 watt CB transceiver at 1 metre or more;
  - .2 6 watt VHF and UHF transceivers at 1 metre or more;
  - .3 25 mW 400-450 MHz Personal Portable Transmitters at 1 metre or more;
  - .4 Other radio frequency transmitting, receiving, and distribution equipment at 5 metres or more;
  - .5 Computer work stations at 5 metres or more;

#### **3.4 Reliability**

- .1 The camera must have an MTBF of at least 25,000 hours.

#### **3.5 Safety**

- .1 The camera must meet IEC 60950-1 or the CSA equivalent.

## 4 OPERATIONAL

### 4.1 Camera

- .1 The camera must retain its configuration over a power cycle.
- .2 The image sensor must:
  - .1 include automatic or remote back focus;
  - .2 have a minimum of 480,000 pixels (horizontal x vertical);
  - .3 have day (colour) and night (black and white) modes;
  - .4 automatic removable infrared cut filter for day/night transition;
  - .5 have 0.5 lux or less minimum required illumination for day mode;
  - .6 have 0.1 lux or less minimum required illumination for night mode;
  - .7 include Automatic Gain Control (AGC);
  - .8 include extended dynamic range processing;

### 4.2 Lens

- .1 The camera lens must:
  - .1 have a 35° to 80° or greater horizontal angular view vari-focal lens
  - .2 be approved by the manufacturer of the camera for that camera;

### 4.3 Video

- .1 The video encoding must:
  - .1 support H.264 configurable I-frame frequency of at least 3 per second;
  - .2 support H.264 constant bit rate transmission mode;
  - .3 support H.264 frame rate transmission mode;
  - .4 support at least 3 levels of H.264 image quality;
  - .5 support at least 3 levels of MJPEG image quality;
- .2 The video output must:
  - .1 include an on-screen, programmable character generation overlay capability with a minimum of 8 visible characters;
  - .2 support at least two simultaneous H.264 video streams at 30 frames per second with at least 480,000 pixel resolution;
  - .3 support at least two simultaneous video streams, one H.264 and one MJPEG at 15 frames per second with at least 480,000 pixel resolution;

## **5 INTERFACE**

### **5.1 Ports**

- .1 The camera must:
  - .1 interface over IPV4 TCP/IP;
  - .2 be able to operate on 100Base-TX (IEEE 802.3u);
  - .3 connect using an RJ-45 connector;
  - .4 be ONVIF compliant;

### **5.2 Power**

- .1 The camera must be a Type 1 powered device operating solely from Power over Ethernet (PoE) compliant with IEEE 802.3at Class 0, 1, 2, or 3.

### **5.3 Video Management System Compatibility**

- .1 The camera model must be identified as “Certified” or “Supported by Design” in the current Genetec Omnicast Supported Hardware camera list.