**ELECTRONIC ENGINEERING STANDARD**

**PAN/TILT/ZOOM NETWORK COLOUR DOME CAMERA**

**FOR USE IN FEDERAL CORRECTIONAL INSTITUTIONS**

**AUTHORITY**

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,
Electronic Security Systems

Approved by:

Director,
Electronic Security Systems

## TABLE OF REVISIONS

| Revision | Paragraph | Comment |
|---|---|---|
| 0 | N/A | Original |
| 1 | Paragraph 7.12<br>Paragraph 7.21 | Optical zoom increased to 30x<br>Added electronic image stabilization |
| 2 | All | Reformat and indoor/outdoor standard merge |

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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 |
| PTZ | Pan Tilt Zoom |
| TCP/IP | Transmission Control Protocol/Internet Protocol |
| UHF | Ultra High Frequency |
| VHF | Very High Frequency |

## TABLE OF DEFINITIONS

| Term | Definition |
|---|---|
| Design Authority | Director, Electronic Security Systems |

# 1   INTRODUCTION

## 1.1 Overview

.1    This standard defines the requirements of Correctional Service Canada (CSC) for a pan, tilt, zoom (PTZ), network capable, dome camera for use at federal correctional institutions. PTZ cameras are deployed to allow detailed examination of areas typically covered by fixed cameras or areas without regular evidentiary coverage.

## 1.2 Purpose

.1    The cameras are deployed primarily for observation use. Given they may be pointed anywhere, they are not assumed to be evidentiary coverage.

.2    These cameras are for deployment for all outdoor PTZ camera locations.

.3    These cameras are for deployment for all indoor PTZ camera locations.

## 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 |

## 3  PHYSICAL

### 3.1 Dimensions

.1    The camera case and dome must:

    .1    measure a base diameter less than 250mm;

    .2    measure from base to top of dome of less than 400mm excluding any mount;

    .3    weigh less than 5kg excluding mounting hardware;

### 3.2 Environment

.1    The camera case and dome must:

    .1    meet or exceed IEC EN60529 IP66 dust and water resistance when mounted;

    .2    if deployed within 5 metres of inmates, meet or exceed IEC EN62262 IK10 impact resistance;

    .3    if surface mount, have threaded openings for conduits;

    .4    if pendant mount, have all cables enter through the attachment pipe;

    .5    if pendant mount, have no other openings in the enclosure excluding the dome assembly;

    .6    have a threaded plug to seal all unused openings;

    .7    have set-screws to secure all conduit and plugs from inside the dome;

    .8    have tamper resistant heads on all externally accessible screws;

    .9    have a permanently affixed label on the interior of the unit which identifies the manufacturer, the model or assembly number, the serial number and the power requirement;

    .10    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;

    .11    have a smoked dome with a light attenuation factor of 1 f-stop;

.2    The camera must:

    .1    be capable of continuous operation;

    .2    start and operate from -40°C to 50°C;

    .3    start and operate from 0 to 100% 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    1.0 lux or less minimum illumination for day mode;
    .6    0.1 lux or less minimum 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 horizontal field of view optical zoom range including 3.5° to 50°;
    .2    be integral to the camera assembly;

### 4.3 PTZ

.1    The PTZ must:

    .1    have a pan range of 360° continuous (endless);
    .2    have a minimum tilt range of 180°;
    .3    include automatic image inversion at 90° tilt;
    .4    have a minimum pan and tilt speed of 0.1°/sec or slower;
    .5    have a maximum pan and tilt speed of 100°/sec or faster;

### 4.4 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 or Type 2 powered device operating solely from Power over Ethernet (PoE) compliant with IEEE 802.3at Class 0, 1, 2, 3, or 4.

### 5.3 Video Management System Compatibility

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