PRODUCT:	**HIGH DEFINITION, IP DOME CAMERA** **VB-M720F 1.3 Mega pixel, High Definition, IP Fixed Box Camera**
Division 28	**ELECTRONIC SAFETY and SECURITY**
Level 1	**28 20 00 ELECTRONIC SURVEILLANCE**
Level 2	**28 23 00 VIDEO SURVEILLANCE**
Level 3	**28 23 29 VIDEO SURVEILLANCE REMOTE DEVICES and SENSORS**

PART 2 GENERAL - Safety, standards and certification

2.01 General Requirements

The camera shall be from the manufacturer's official standard product line, designed for commercial/industrial continuous use i.e. for 24-hour operation.

The camera shall be based upon standardised components and proven technology generally using open and published protocols.

2.02 Quality Assurance

A. All camera installation, configuration, setup, program and related work shall be performed by trained technicians thoroughly familiar with the installation, setup and service of the camera equipment provided.

All equipment provided shall be backed by a minimum of 1 years manufacturer's warranty.

2.03 Certifications and standards

B. The camera shall carry the following EMC and other approvals: EN55022, EN55024

The camera shall meet the following coding/compression standards:

JPEG

ISO/IEC 14496-10 AVC, – 12 and -15

Networking:

a. IEEE 802.1X (EAP-MD5, EAP-TLS, EAP-TTLS, EAP-PEAP)

IPv4

IPv6

PRODUCTS

2.04 Sensor

The camera shall:

C. Use a high quality 1/3” CMOS sensor using a primary colour filter.

Have an active number of pixels of 1280 x 960

Use Progressive scanning

2.05 Optics

The camera shall:

D. Be fitted with a removable IR-cut filter, providing "day mode & night mode" functionality, with automatic switching

Be fitted with a 3 x optical zoom lens . The focal length range shall be 2.8 mm (W) to 8.4 mm (T), giving a horizontal field of view of 112.6° to 36.7°. The F number of the lens shall be in the range of F1 .2 (W) to F2 (T)

In colour, provide images down to a lighting level of 0.3 Lux, (F1.2 shutter speed 1/30sec, smart shade control off, 50 IRE)

In monochrome, provide images of a minimum subject illumination down to 0.15 Lux (F1.2 shutter speed 1/30sec, smart shade control off, 50 IRE)

2.06 Have focus control adjustable between:

Auto/One Shot AF/Manual/Fixed at infinity

E. Have the focusing region

in Day mode from 0.3 m - infinity
in Night mode from 1.0 m – infinity

Have the shutter speed adjustable from

1 sec to 1/16000 sec in 16 steps (17 levels) in manual mode
½ sec to 1/16000 sec in 15 steps (16 levels) in auto mode

Have the white balance settings selectable between:

Auto/Fluorescent (Daylight-white-warm)/mercury lamp/sodium lamp/halogen lamp/ manual one-shot WB (RGain/BGain)

Have three settings of noise reduction, [mild], [standard] or [strong].

Have seven settings of sharpness.

Have Smart Shade Control with settings as [Auto-SSC] with three levels, [Manual] with seven levels adjustment and [Disable].

Have Haze Compensation with settings of Auto/Manual/Disable with three levels in Auto and seven levels in Manual.

Adjustable day/night switching settings and an adjustable time period for switching between day and night (with five levels and five time settings).

Have an Automatic Gain Control (AGC) with five levels and Off.

2.07 Server unit

Shall provide video compression in either H.264 or JPEG (both with five levels of quality).

F. There shall be 6 image output sizes up to 1280 x 960 pixels.

Image rates shall be up to 30fps for both H.264 and JPEG with two simultaneous streams possible as H.264 at 15ips at maximum resolution.

The I frame interval shall be variable between 0.5 seconds up to 5 seconds.

Maximum number of clients shall be 41 (including one admin client), 31 as http clients (of which 10 can be H.264) plus 10 as RTP clients on H.264

Both IPv4 and IPv6 shall be supported in both TCP/IP and UDP with DHCP (and DHCPv6) and ONVIF Profile S

Shall be able to use encrypted communication such as SSL/TLS, IPsec

2.08 Embedded analytics to include

G. Camera tampering detection

Moving object detection

Abandoned object detection

Removed object detection

Passing detection

Audio Volume detection

2.09 Connectors

H. RJ45 network (LAN 100BaseT)

Power connector

2 x 3.5mm mono mini jack (audio in out)

2x input, 2x output for external devices

SD, SDHC, SDXC memory card.

2.10 Mechanisms

The Camera Angle Setting tool shall remotely enable:

I. Have up to 20 pre-set positions. The move to preset on “alarm” is to a “digital” virtual position within the camera’s view

2.11 Dimensions, weight & colour

J. 80mm W x 65mm D x 192mm

Approximately 670 g

Be available in silver

2.12 Video

K. Size setting
The camera shall be able to deliver high-quality video in 6 different resolutions up to 1280 x 960.

Transmission speed
The camera shall allow the transmission of images at up to 30 frames per second in all resolutions, using JPEG and/or H.264.

Compression
The camera shall provide simultaneous support for both JPEG and H.264.
The H.264 implementation shall include support Bit Rate Control and shall support both unicast and multicast.
The camera shall provide at least 5 different compression levels in total.

The camera shall be able to record video at “the edge” i.e. to a memory card at the camera. This can be downloaded to a PC for viewing remotely.

Privacy masking
The camera shall have 8 privacy masks of one of nine colours.

2.13 Audio

L. The camera shall support full duplex audio using G.711 m-law compression.

The camera shall be capable of using Sound Transfer Protocol by Canon

2.14 Functionality

M. IP addresses

The camera shall support both fixed IP addresses and dynamically assigned IP addresses provided by a Dynamic Host Control Protocol (DHCP) server or for IPv6 as DHCPv6.

The camera shall provide support for both IPv4 and IPv6.

Bandwidth management

The camera shall provide the ability to control network traffic by limiting the maximum bandwidth to a selected value.

Provide the capability to limit the frame rate to a selected value.

Event functionality

The camera shall be equipped with event functionality, which can be triggered by:

a. External inputs

Timer,

Intelligent Function (video)

Intelligent function (audio)

Response to triggers shall include:

b. Notification, using E-mail

Image upload using HTTP/FTP or record to Memory card

Video upload using H.264

Preset call up of digital preset position within the camera's overall view

Activating external output

2.15 Text overlay

The camera shall provide embedded on-screen text in the video, with support for date & time (NTP server linked), and a customer-specific text, camera name.

N. Security
The camera shall support the use of:

IPSec mode shall be supported including Tunnel mode

SSL/TLS, providing the ability to manage certificates and private key files.

Authentication shall be possible by using IEEE 802.1X authentication.

The camera shall provide support for restricting access to pre-defined IP addresses only, so-called IP address filtering.

Access to the built-in web server shall be restricted by usernames and passwords.

ONVIF Profile S.

Installation and Maintenance

The camera shall:

a. Be supplied with Windows-based management software which allows the assignment of IP addresses, upgrade of firmware and backup of the cameras configuration.

Support the use of SNMP-based management tools.

Customer-specific settings, including statically assigned IP address, the local time & date, event functionality and video configuration, shall be stored in a non-volatile memory and shall not be lost during power cuts or soft reset.

2.16 Interfaces

O. Inputs/Outputs

The camera shall be equipped with two digital (alarm) inputs and two digital outputs, accessible via a terminal block. These inputs shall be configurable to respond to normally open (NO) or normally closed (NC) dry contacts.

Audio

The camera shall be equipped with one mono 3.5mm jack for line/mic input and one mono 3.5mm jack for line out.

Network interface

The camera shall be equipped with one 100baseTX Fast Ethernet-port, using a standard RJ-45 socket and shall support auto sensing of network speed.

2.17 Power requirements

P. PoE IEEE802.3af (approx. 6.9W max)

12 V DC, max 7.0W

24V AC max 6.5W

2.18 Operating environment

Q. For indoor and outdoor use

Operating temperature -10°C to +50°C

Humidity 5% to 85% non-condensing

2.19 Manufactured units

The camera shall be a Canon VB-M720F.

[If this is to be a performance-based specification, remove Item 2.19.]