

# ITS specification Automatic video incident detection (ITS-08-01)

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# Document management plan

## 1) Purpose

The purpose of this document is to specify the general requirements for an Automatic Video Incident Detection System.

## 2) Document information

<b>Document name</b>	<i>ITS specification: Automatic video incident detection</i>	
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## 3) Key words

ITS Automatic Video Incident Detection.

## Record of amendments

Amendment number	Section amended	Description of change	Updated by	Effective date
Draft R0	All	ITS Draft Specifications Issue	TLH & JF	20/9/2010
Draft R1	3.1	Updated following consultation comment	PTA	10/1/2012
Final R2	All	Provisional	BW & JS	15/2/2012

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## 1.0 Purpose

The purpose of this document is to outline the minimum requirements a contractor would need to meet in the supply, testing, installation and commissioning of an Automatic Video Incident Detection System.

## 2.0 Automatic video incident detection

### 2.1 General

In general an Automatic Video Incident System is deployed in situations where 100% visual coverage is required and the need to immediate incident response is critical, i.e. a tunnel.

Typically the AVID system is additional to the surveillance CCTV systems and consists of the following:

- Fixed CCTV Camera.
- Video Image Processor.
- Method of Communication (Modem, leased line, fibre network etc., the preferred method of communication is via the NZTA network).
- Control System Software.

## 3.0 Camera specification

### 3.1 Camera specification

Each CCTV camera shall be fit for purpose and as a minimum comply with the following:

- The camera shall use a colour, solid state sensor.
- CCIR/EIA 1Vpp (+/- 20%).
- The minimum horizontal resolution shall be 470 TV lines.
- Highlight compression shall be utilised to minimise the effect of bright spot light sources “washing out” the picture.
- Ability to automatically increase sensitivity under night lighting conditions.
- Lens mount shall be C type.
- Analogue video signals shall be PAL standard.
- No frame accumulation and
- No Automatic Gain Control (AGC).

### 3.2 Lens specification

Each CCTV lens shall comply with the following:

- The lens format shall suit the camera format and shall be C mount.

- The lens shall have slow IRIS regulation to enable minimal change in image.
- The focal range of the lens shall be applicable to the intended application.
- All the optical elements of lens shall be glass and
- The lens shall be designed to prevent flare from indirect sunlight outside the field of view at all zoom settings.

### 3.3 CCTV housing

Each housing shall comply with the following:

- Provide a minimum IP66 ingress protection to IEC 60529.
- A sunshield shall be provided over the housing containing the CCTV equipment, designed to minimise the amount of heat build up in the enclosure due to solar radiation, and to shade the lens.
- The sunshield shall not impinge on the field of view of the CCTV when it is at minimum zoom setting. Each housing and sunshield shall be designed to ensure that the internal temperature of the housing does not exceed the manufacturers recommended maximum continuous operating temperature of any hardware components contained within it.
- If this cannot be achieved by housing/sunshield design alone, then suitable additional measures shall be implemented to achieve it.
- Thermostatically controlled anti-condensation heaters shall be included in the enclosure to ensure that condensation shall not occur within the housing.
- A wiper shall be provided, where appropriate.
- All cable entries shall be from below or rear where this is not possible.
- The housing shall be designed to permit quick access to all internal components with minimal use of tools. Quick release latches or equivalent are preferred.

### 3.4 CCTV camera mounting

Each camera shall be mounted using a bracket recommended by the manufacturer, the number and location on each device shall be dependent on its intended use.

## 4.0 Video image processor

The video image processors identified for the system shall have the ability to offer:

- Traffic monitoring.
- Incident Detection.
- Traffic Data Collection.

They will receive the video feed from each CCTV camera and be accessible for maintenance and fault rectification, they will contain no moving parts.



## 4.1 Incident detection

The following incidents shall be detected and generate alarms with the system:

### **Traffic events**

- Stopped Vehicle
- Inverse Direction of Travel
- Speed Drop
- Traffic Congestion
- Under Speed
- Over Speed
- Vehicle Presence

### **Non traffic events**

- Smoke and Flame Detection
- Pedestrian
- Fallen Objects/Debris

### **Traffic data**

- Flow Speed
- Zone Occupancy
- Volume Count
- Gap Time
- Density Per Lane
- Vehicle Classification

### **Technical alarms**

- Loss of Video
- Bad Video
- Loss of Power
- Movement
- Video Format – Video format shall be MPEG 4

## 4.2 DYNAC integration

The VIP shall integrate with the NZ Transport Agency's (NZTA) Traffic Management System DYNAC to alert Traffic Operations Centre operators of alerts and detection, including fault events.

## 4.3 Installation

Each VIP shall be rack mountable and be hot swappable in order to reduce downtime.

Each VIP shall have the ability to be configured locally and remotely.

## 5.0 Communications

All proposed systems shall be expected to communicate over the existing NZTA's ITS Ethernet Network and be made available for Traffic Operations Centre via DYNAC. The NZTA ITS Ethernet is a multicast system and therefore devices should be configured multicast to reduce network usage.

## 6.0 Maintenance

The system will require minimal maintenance during an operational year; all parts shall be easily accessible to the maintenance organisation and require no specialist tools.

## 7.0 Reliability

All items of equipment shall be required to meet the minimum requirements of reliability and availability as identified in the NZTA's *ITS specification: General requirements* (ITS-01-01).